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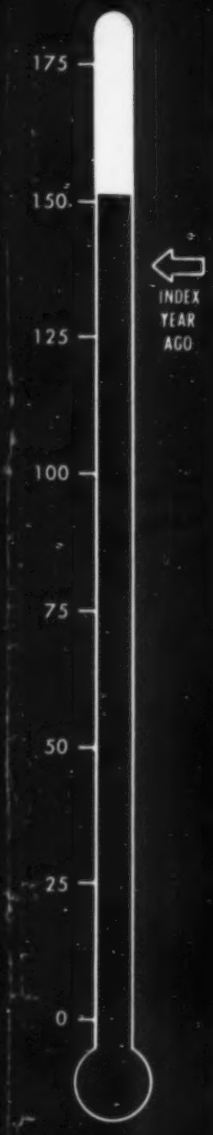
BUSINESS WEEK



American Cyanamid's Towe: A new symbol, new products, new markets (page 54)

A McGRAW-HILL PUBLICATION

FEB. 11, 1956

E B POWER
UNIVERSITY MICROFILMS
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ANN ARBOR MICH

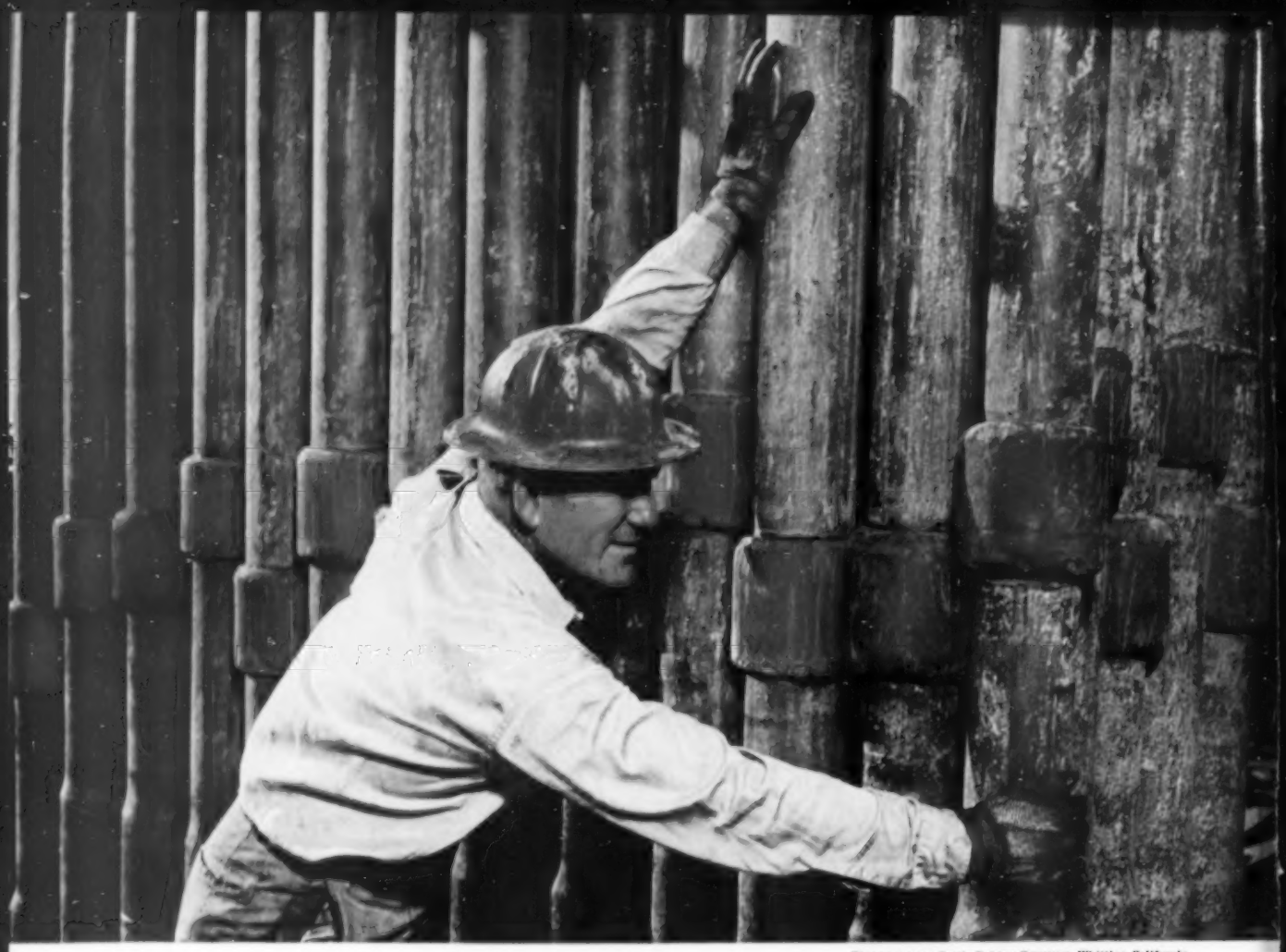

Photo courtesy Bettis Rubber Company, Whittier, California

A case of joint enterprise!

A string of hundreds of joints of drill pipe is as flexible as a fine steel wire. Uncontrolled, it rubs and slams against the casing, resulting in costly, premature wear and damage.

To protect their heavy investment in pipe, casing and tool joints, drillers first placed tough, thick collars of natural rubber on the pipe. These spacers served as efficient protectors, despite the extreme abuse and abrasion.

But the advent of oil-based drilling muds brought a new problem: they attacked the natural rubber–caused rapid swelling and deterioration.

Then an enterprising specialty molding company, in a joint effort with drilling fluid manufacturers, perfected a new compound based on CHEMIGUM – the easy processing nitrile rubber. The extreme oil-resistance of CHEMIGUM made possible a truly "all purpose" protector that fully resists the attack and abrasion of oil- or clay-based muds–and at higher temperatures than any other protector.

How can outstanding oil-resistance and physical properties of CHEMIGUM improve your product? Write for details to: Goodyear, Chemical Division, Dept. N-9415, Akron 16, Ohio.

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High Polymer Resins, Rubbers, Latices and Related Chemicals for the Process Industries

Best way to put up ceiling tile: Use a Bostitch T5-8 Tacker with Bostitch 9/16″ or 1/2″ staples. Press nose of tacker firmly into cove formed by tile flange. Squeeze the lever. You can drive three staples 4″ apart in about three seconds and go on to next tile. You never mar the face of the tiles, and you can wear gloves to keep them clean.

Fastest way to apply insulation: Use either the Bostitch T5-8 Tacker or H2B Hammer, with Bostitch 3/8″ staples. The hammer is faster with a little practice. You can drive staples with a flick of your wrist—*much* faster than hammer and nails. One hand is free to position the insulation. Available at your building supply dealer or local Bostitch office.

Install ceiling tile and insulation the way leading manufacturers approve

In co-operation with leading makers of ceiling tile and insulation, Bostitch has prepared a booklet which gives detailed instructions for installing these materials. The following firms have contributed important information for this booklet and approve this method of installation.

Armstrong Cork Company . . . . . makers of Temlok® Tile, Temlok® Plank and Cushiontone®.

The Celotex Corporation . . . . . makers of Celotex Tile Board and Finish Plank and Celotex Regular and Reflective Rock Wool Blankets.

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Minnesota & Ontario Paper Company . . . . makers of Insulite Tile Board, Plank, and Interior Board.

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Please send me your free booklet describing the best way to install ceiling tile and insulation.

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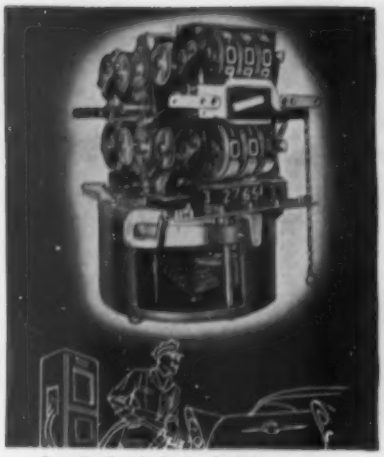

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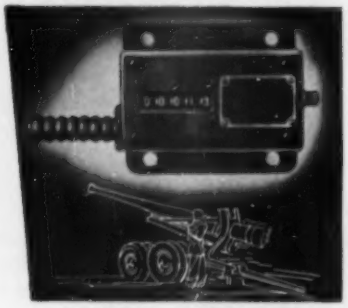

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Classroom, with Custom Webster Walvector behind plywood panels, at Normandy Park Elementary School, of the Highline School District, near Seattle, Washington. Architects: Waldron & Dietz. Mechanical Engineers: Stern & Towne. Heating Contractors: University Plumbing & Heating Co.

MODERN 10-ROOM SCHOOL—$228,000

Waldron & Dietz, Seattle, designed Normandy Park Elementary School. Tru-Perimeter Webster Walvector was economically installed, for heating comfort at low fuel cost.

In classrooms, Custom Webster Walvector heats both recirculated and fresh air. Along corridors, Standard Webster Walvector spreads clean, gentle, even warmth.

Walvector's fin-tube heating element carries forced hot water along all exposed walls. Ends cold spots, hot spots and drafts.

Corridor beside gymnasium. Standard Webster Walvector keeps corridor warm, even when gym is unheated and unused.

Overall construction costs of the school were held to $10.88 per sq. ft., or $760 per pupil. Investigate the economies of Webster Walvector for *your* school. See your Webster Representative or write us.

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Send for a sample and make these simple tests!

Prove to yourself that FOAMGLAS is your ideal insulation!

Let us send you a free sample of FOAMGLAS. Use it to make the few simple tests illustrated. You'll prove that this unique cellular glass insulation has exactly the right combination of properties to assure you of these vital benefits: constant insulating efficiency . . . long, maintenance-free life . . . strength and rigidity for a variety of structural applications . . . ease of handling and installation.

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Pittsburgh Corning Corporation

Department F-26, One Gateway Center
Pittsburgh 22, Pa.
In Canada: 57 Bloor Street West, Toronto, Ontario

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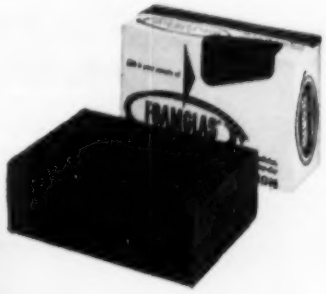

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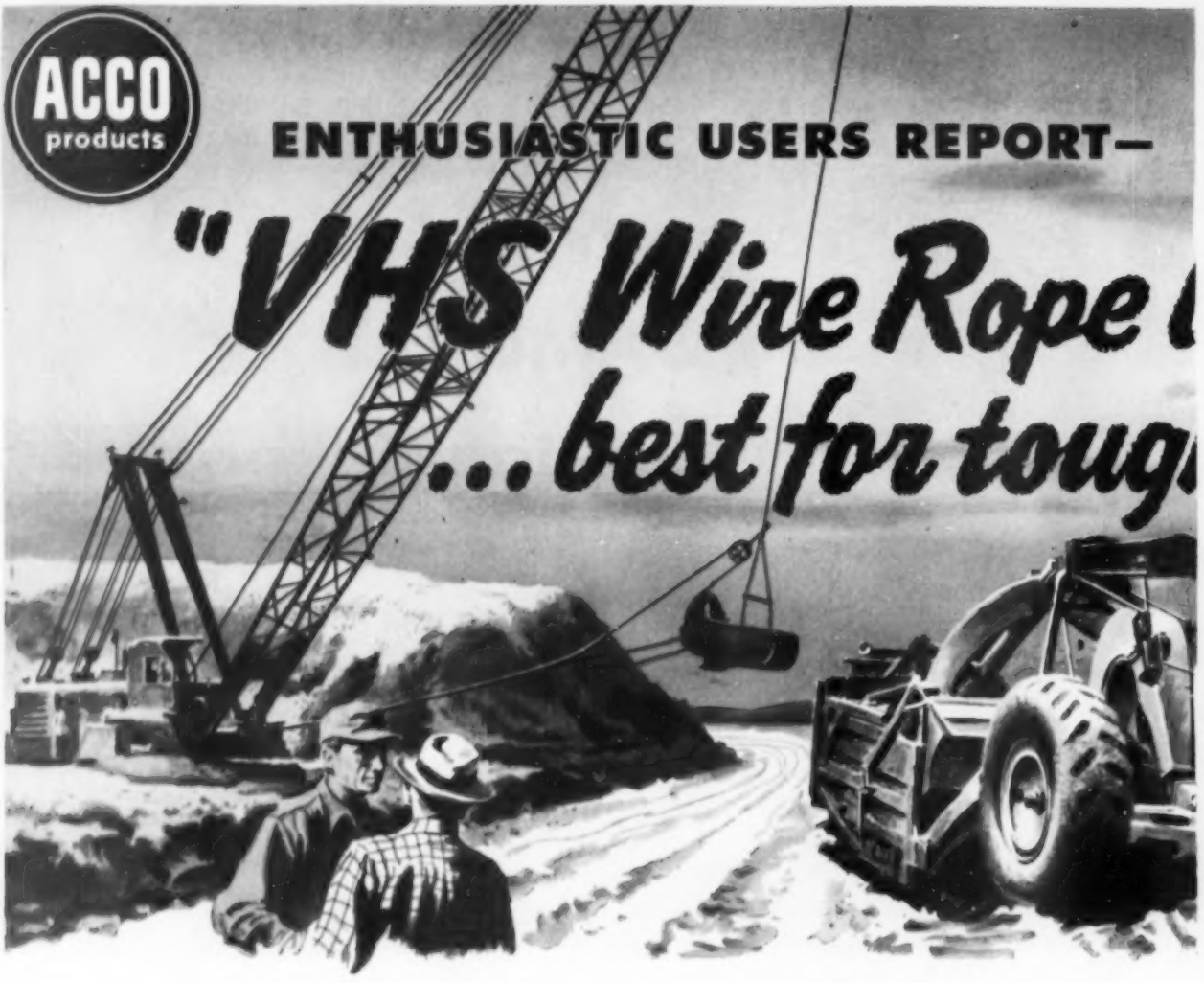

The name VHS stands for Very High Strength —actually 15% above previous highest standard

• Rarely does *any* new product meet with such spontaneous enthusiasm and hearty endorsements after actual user service as have been accorded ACCO's sensational VHS—the *tougher* wire rope with a proved *15% greater tensile strength* than the previously highest-rated standard wire rope!

Read what a few more-than-satisfied users say:

"New VHS scraper cables *are* the best we have ever used. They give us 50% more service and save us valuable time."

"Our new VHS Wire Ropes (on our dragline) have lasted 59% to 100% longer than our best previous ropes."

"Excavator draglines lead a tough life. But with VHS, we now average 1250 hours' work, against our best previous 700 hours—an increase of 73% in service life."

"VHS gives us the best service we have ever gotten from any wire rope...an increased life of 38%."

"VHS does its best work when the going is tough. We are using it on all drags...service life up 33%."

Stands up under punishment

These user comments are typical of others who are finding VHS Wire Rope a spectacular performer in the construction, petroleum, logging and mining industries—wherever the "tough going" demands wire ropes of superlative strength, flexibility and long life.

VHS Wire Rope is marketed by ACCO's American Cable Division under the brand name TRU-LAY VHS—and by ACCO's Hazard Wire Rope Division under the brand name LAY-SET VHS. Buy or specify either brand with complete confidence. All VHS ropes are identified by two adjacent green strands for easy recognition.

For information

on any ACCO product address Market Development Department, American Chain & Cable Company, Inc., 929 Connecticut Avenue, Bridgeport, Connecticut

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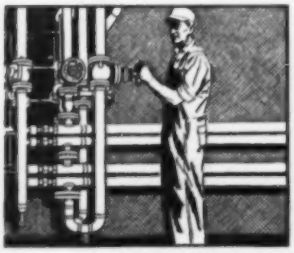
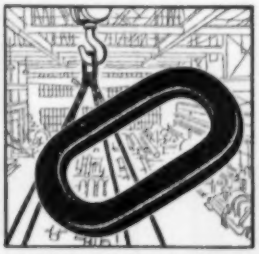
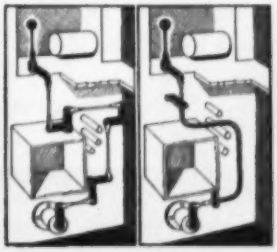


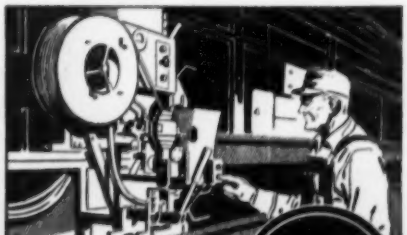
R-P&C VALVES
Satisfied users say R-P&C also stands for Reliable Protection & Control. Bronze, iron, steel and bar stock valves.



SHAPED SECTION MASTER LINK
...for industrial slings. This *new* master link, with a *shaped section*, holds its form under loads up to 18% greater.



TRU-LAY PUSH-PULLS
They simplify design and improve construction by eliminating links and levers. Solid as a rod, yet flexible as wire rope.



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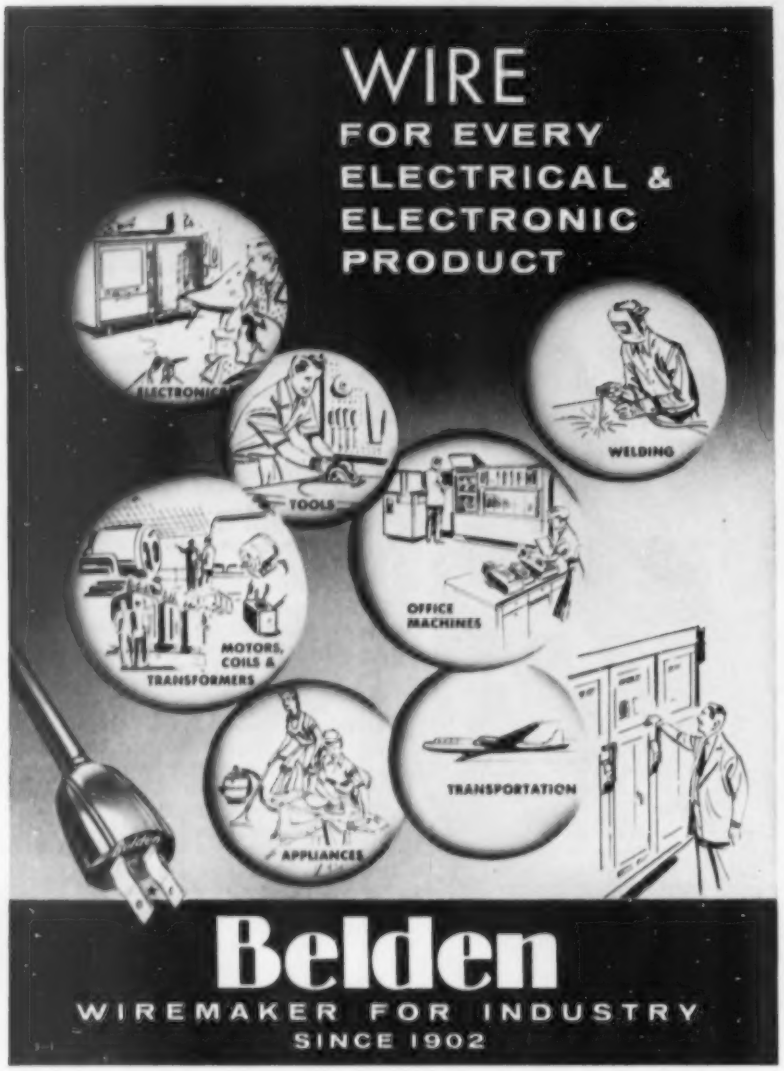
...for submerged arc, inert gas and oxy-acetylene welding; furnished in convenient packages from local distributors' stocks.

Better Values



Engineered wire for everything electrical or electronic—that is Belden's business. Hair-like filaments to wind the tiny transformers for transistors or heavy magnet wires for utility transformers two stories high—power supply cords for the smallest appliances, like your shaver—up to heavy duty electric tools and equipment.

For welders, for planes, for electronic brains—Belden has the wire for the job—Belden quality means lowest over-all cost.

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Lead and Fixture Wire
Power Supply Cord, Cord Sets and Portable Cord
Aircraft Wires
Electrical Household Replacement Cords
Electronic Wires
Welding Cable
Automotive Replacement, Wire and Cable

READERS REPORT

Milk Pros and Cons

Dear Sir:

Your article Milk Industry: Its Hows and Whys [BW—Jan.21'56, p172] was one of the finest reviews of this subject that I have read. Many of our salesmen are in daily contact with milk distributors and find frequent occasion to discuss pros and cons of milk price controls and federal marketing orders. . . .

I. S. FELLNER
AMERICAN CAN CO.
SAN FRANCISCO, CALIF.

Dear Sir:

My congratulations for a very excellent article on that most complicated industry—Milk. . . .

LEE HAMRICK
DAIRYMEN'S LEAGUE
NEW YORK, N. Y

Dear Sir:

. . . I must congratulate you on the excellent job on your milk story. I feel, and my associates have commented, that this is one of the finest journalistic treatments of the subject that we have seen. I admire your skill in putting into lucid nontechnical style the complexities of the subject.

LOUIS F. HERMANN
HEAD, DAIRY SECTION
MARKET ORGANIZATION AND COSTS BRANCH
U. S. DEPT. OF AGRICULTURE
WASHINGTON, D. C.

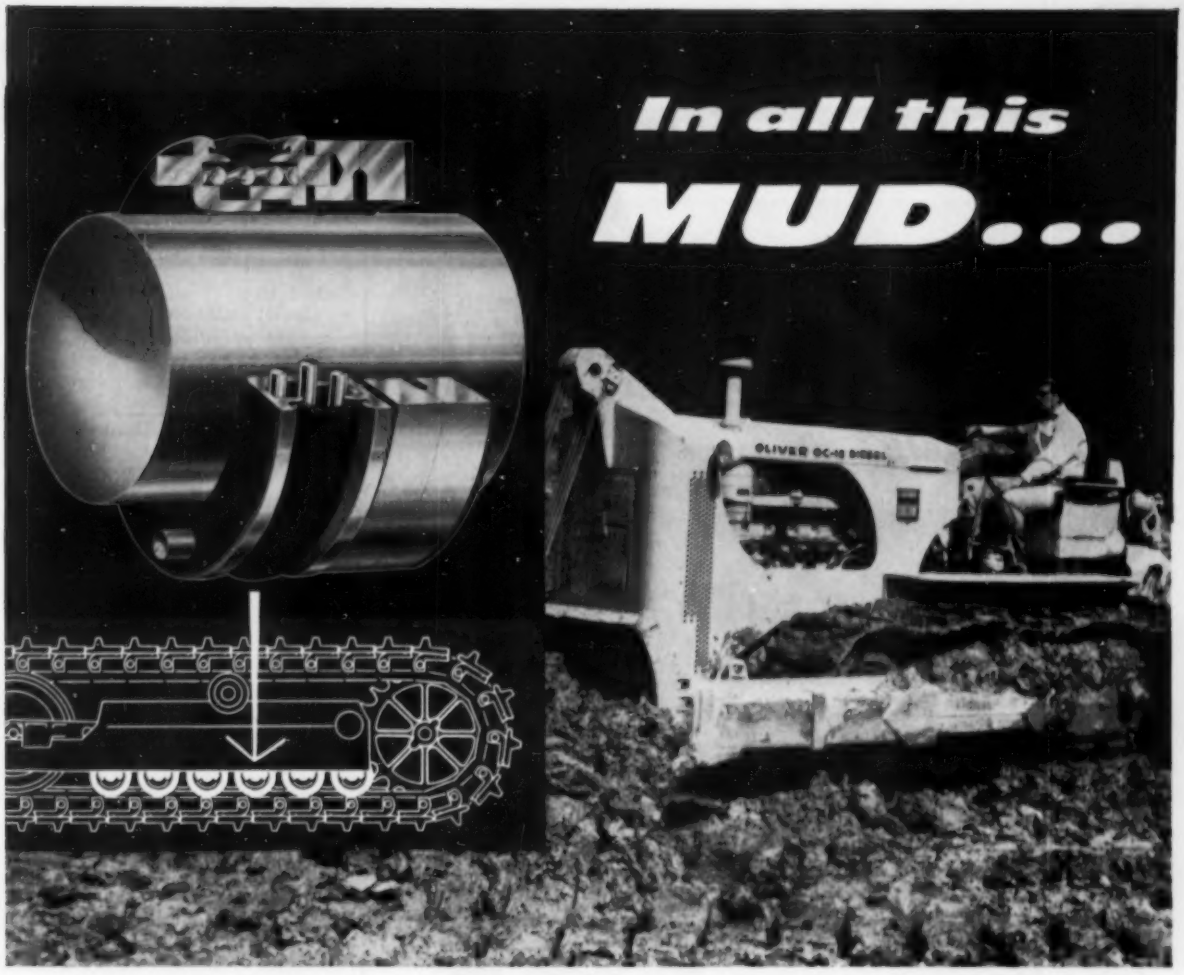
Dear Sir:

In your article on milk you say, "Since fluid milk costs more to produce, it carries a higher price tag. So for the farmer, the most valuable use of milk is in fluid form."

Do you mean by "most valuable" the most profitable? If this is what you mean, I do not understand your logic. That is to say, I do not understand why a "high-cost" item should be more profitable, in a free market, than a "low-cost" item.

CALDWELL DANIEL III
CHARLOTTESVILLE, VA.

• By "most valuable" we meant specifically "highest priced." However, for the fluid milk producer, the proportion of his milk that is actually used as fluid is also the most profitable. Since he has to meet fluid milk standards, his costs are the same whether his milk is bottled for drinking or used in man-



TRACK WHEEL BEARINGS ARE COMPLETELY PROTECTED

Whether it's tropical muck or crystal sharp Alcan dust, nothing sneaks past the C/R End Face Seals guarding the track wheels of this giant Oliver OC-18 Crawler. And here's why: The mating rings in this steel-on-steel C/R Seal are lapped flat within .000034 inch! They form a leakproof seal so dependable that even under the worst field conditions the oil and the bearings stay clean and the oil level does not require the usual frequent checking. Seal performance like this cuts downtime for lube checks . . . saves big money on round-the-clock operations. You can have equally dependable performance . . . and savings . . . with C/R Oil Seals.

C/R engineers will cooperate with you on special designs, or help select the right stock seal for a wide range of applications. Write for detailed information.

More automobiles, farm and industrial tractors rely on C/R Oil Seals than on any similar sealing device.

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CHICAGO RAWHIDE

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Sanax was developed to permit frequent cleaning of waxed floors *without washing away the finish* . . . and to eliminate waste in wax and labor. A neutral liquid soap with a wax base, *Sanax* not only quickly removes dirt, oil, and grease, but *leaves a thin film of wax.* In fact, regular use of *Sanax* to machine-scrub or damp-mop waxed floors *actually prolongs the life of the finish,* and thereby reduces refinishing costs on a year-to-year basis. Like all *Finnell Fast-Acting Cleansers, Sanax* is designed for the greater speed of machine-scrubbing, and works as effectually in a *Combination Scrubber-Vac* as in a *Conventional Scrubber-Polisher.* And because *Sanax* is processed from pure vegetable oils, it's *safe for all floors.*

Find out how you can simplify and reduce the cost of caring for waxed floors. *There's a Finnell Floor Specialist nearby* to help you choose the waxes and cleansers that are *exactly right for your needs. Finnell* manufactures a complete line, so you can depend on unbiased advice. In fact, *Finnell makes everything for floor care!*

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- Highly concentrated . . . economical to use

For consultation, demonstration, or literature, phone or write nearest *Finnell Branch* or Finnell System, Inc., 3802 East Street, Elkhart, Indiana. Branch Offices in all principal cities of the United States and Canada.

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ufacturing. He doesn't want to sell his "high-cost" milk for "low-cost" manufactured products; he's forced to sell at least part of his production this way by the economics of milk. The more of this "high-cost" milk he can sell as "high-priced" fluid, the higher his total return will be.

The Salesman's Ladder

Dear Sir:

Good sales blood must have boiled at Prof. Raymond W. Mack's talk to the AMA and your heading on the report column [BW—Jan.7'56,p96—". . . Salesmen are working their way down the ladder of success rather than up it"]. A better title would be "Management is working the salesman's way down the ladder of success rather than up it." My apologies to Prof. Mack since I haven't read his talk itself, but there is another side to the picture.

First, what is the kind and calibre of man in his study—he doesn't like his job or the way it is put to him. Was he trained and then followed up with more training? Was he hired by the sales manager, a former supersalesman, who believed that all his men should think like him or by a man who understood and trusted men?

Second, the good salesman after he has achieved some success does join associations for continued contacts, but his success makes it possible. The good industrial salesman knows that success lies in customer service for 90% of his work and that is based on product knowledge.

Third, management in the hands of production men and accountants tries to buy at the lowest possible price. Salesmen in some industries are hired today at the same price as clerks, the result is a clerical order taker and not a salesman. Another vicious tool is the salary and commission set up that is adjusted in the following year for this year's production. If we must have a salary and commission basis, let's adjust at the end of the year to a basic percentage of total volume. The salesman reaches a volume quota and sees only a small percentage compensation for the rest of the year and sits back and says "I may be gone next year, pay me now."

The above are superficial answers to deep underlying problems, but are indicative of what must be done to re-create the real salesman. Success is a measure of the man's ambition, but it must be nurtured

"Mister, I wouldn't want stock in this company!"

No assistant treasurer was ever more astonished . . . or more curious. *Why* were the foremen so cold toward the new stock purchase plan?

Then came the deluge. The foremen stated flatly that money was being wasted on indirect labor. Yet without daily reports on their operations – man-hours, output, work ahead – they could do little about it. Some of them had complained before. All of them questioned the future of a company where factory costs were handled so loosely.

That's how we got a nice order for Keysort punched-card accounting. Now each foreman receives a daily labor control summary of his department's operations for the preceding day. When something goes wrong, it's corrected *on time*, not two weeks later. Idle man-hours have been cut. Fewer layoffs and extra shifts. The general manager has stabilized production. And profits are up.

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I consider myself a professional salesman, starting up the ladder and proud of the opportunity to be of real service to my customers.

GEORGE H. CLAUTICE
PRINCETON, N. J.

The Greatest Return

Dear Sir:

I was interested in your article entitled Investing for the Long Haul [BW—Nov.26'55,p134]. But I do not think you chose the stocks that showed the greatest return over the past lengthy period.

Recently I had a tabulation made of the larger industrial stock companies listed on the New York Stock Exchange with the following results. For each $100 invested on January 2, 1923 and sold January 2, 1953 or after 30 years, you should have received on an average the following annual return per $100; that is, this would be the return from dividends and increased market value over the 30-year period.

E. I. du Pont de Nemours—$162, General Motors—$96, American Can—$64, Goodyear Tire & Rubber—$54, Union Carbide & Carbon—$44, Aluminum Co. of America—$37, Pittsburgh Plate Glass—$28, International Harvester—$26, Bethlehem Steel—$13, United States Steel—$8, and Anaconda Copper Co.—$6.

F. R. BURNETTE
PITTSBURGH, PA.

Code of Behavior

Dear Sir:

Thank you for your editorial The Economists Look Ahead to 1956 [BW—Nov.26'55,p196].

Their considered opinions are of greater value than many of us in business appreciate, perhaps because they as a group have a "bad" public relations department for several reasons, I believe.

Among those reasons:

(1) Too few of them are economic statesmen, and as a corollary, too many are affiliated with pressure groups, and too many have become professional economists without first being well-grounded and loyal citizens of our unique republic.

(2) Their individualist nature or some other quality has resulted in their publicly expressing widely varying points of view to the end that too many of our people are convinced that no two of the economists agree about anything.

(3) They, as a group, have failed to adopt a code of economic behavior. Both their own members, I believe, and the general public would be immeasurably helped by the wide publication of such a code.

In paragraph five of your editorial you mention that the assembled economists felt that the high and rising level of capital spending by business [BW—Nov.12'55,p27] plus federal tax cuts that they assumed would amount to $3-billion to $4-billion, would guarantee that business would continue at a high level long after the summit was attained. Did they fail to mention the contribution that adherence to the plan outlined in the Hoover Reports might make for our economic well-being as we pass the peak and start to level off from the present spurt?

F. E. SCHUCHMAN
PRESIDENT
HOMESTEAD VALVE MFG. CO.
CORAOPOLIS, PA.

The Door of Air

Dear Sir:

In my view, the interesting article A Door That's Made of Air [BW—Dec.3'55,p150] was improperly placed in the New Products section.

February 1954 I walked through such a "door" to enter a store in Bonn, Germany. My American companion said she had heard of such entrances a year before. Subsequently I observed similar entrances in other German cities.

I am writing this letter because I think it important that Americans not slip into the habit of thinking a device is new simply because it is new to America. You may be assured I would not have written had I not learned to respect the quality of BUSINESS WEEK's reporting.

MRS. LUCY S. HOWORTH
WASHINGTON, D. C.

• It ran in New Products because it is new to the U.S. The article stated the patent is Swiss.

Letters should be addressed to Readers Report Editor, BUSINESS WEEK, 330 West 42nd Street, New York 36, N. Y.

DYED IN THE WOOL

With the help of Victor Diammonium Phosphate (and somewhat more practical equipment), this amateur might easily qualify as a professional dyemaster. That's because, in dyeing natural fibers and synthetic worsted blends, Diammonium Phosphate is so dependable that even a child could be entrusted with its use. This remarkable chemical maintains rigid, *automatic* control of the dye bath . . . assures even, fast, dependable results.

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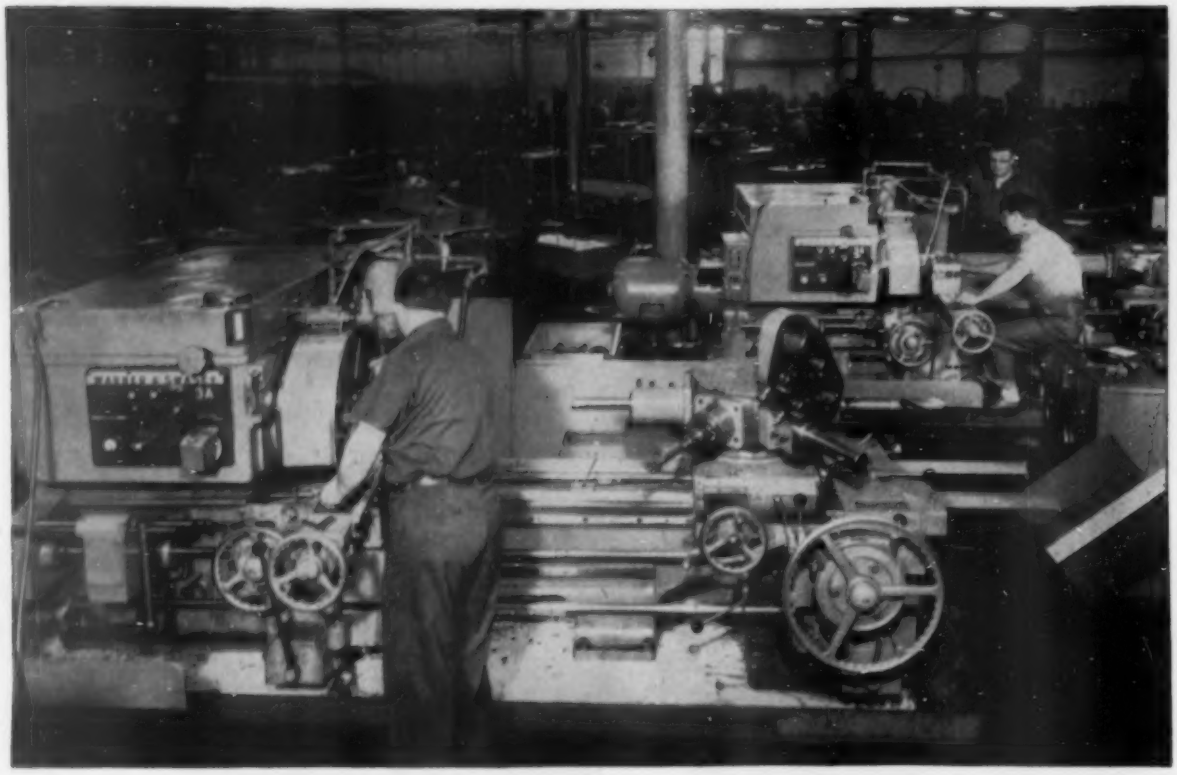

Warner & Swasey 3-A's show 5-way production gain for Goss!

GOSS PRINTING PRESS CO. replaced two 1941 turret lathes with two Warner & Swasey 3-A's, as part of their dynamic replacement program. Here are the performance factors that they report speeded production and added up to *30% savings* from their new Warner & Swasey installation:

More speeds quickly available in their working range. Because of Goss' small lot production, averaging about 10 pieces, work diameters vary from small ¾" bores all the way up to maximum machine chucking capacity. 32 easily-obtained speeds permit selection of the right speed for the particular cut.

Built-in accuracy and rigidity eliminated the non-productive time previously necessary for inspections to maintain specified tolerances. Now entire lots are run with only spot checks after the first piece. They bore 3½" diameter sleeves 12" long to within a .0005 end-to-end taper tolerance, and within .0005 total tolerance on the bore! Previously, such bore tolerances required reaming.

Higher top speed of 851 rpm. and **increased horsepower** now permit running all jobs, even smaller work diameters, at recommended surface speeds of 400 surface feet *and higher!* More combined and multiple cuts are also possible.

Handling ease of the new 3-A's has them all talking at Goss! They praise the new automatic headstock, with its shifting ease and direct reading preselector dial; the time and effort saved by the power chuck wrench; the single lever rapid traverse on the cross slide apron, and the zoned controls.

That's the Goss report. If you've read "between-the-lines" production advantages for *your* shop, see our Field Engineer for more facts!

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How Atlas works in your "drug store"

Atlas emulsifiers and sorbitol add extra value . . . taste, appearance, "keeping qualities". . . to pharmaceuticals and cosmetics.

MANY of the familiar products in your medicine chest contain ingredients made by Atlas. Cough syrups, tonics and mouthwashes, for example, contain Atlas sorbitol to lend pleasant "body" that makes them easier to take. Lotions and creams contain Atlas emulsifiers to make the oil and water in them mix smoothly together . . . often use sorbitol, too, to stabilize moisture and give smoother application. Nearly every brand of toothpaste contains sorbitol as a "conditioner."

Our own cosmetic and pharmaceutical laboratories work in close harmony with leading manufacturers to develop new ways to make new products possible, old products better, with Atlas chemicals. Solving these kinds of problems is an important part of our business. Atlas Powder Company, Wilmington 99, Delaware.

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SORBITOL, POLYESTER RESINS
EMULSIFIERS, DETERGENTS
EXPLOSIVES, ACTIVATED CARBONS

New Westinghouse Purchasing Plan

Helpful to both buyer and seller

The Purchasing Department of Westinghouse Electric Corporation has initiated a new purchasing program. Through a plan called Operation Co-operation they are developing an open door policy to encourage suppliers to meet with their engineers and others in an effort to learn more about Westinghouse products and methods.

In this way it is expected that suppliers' sales representatives and engineers may be in a better position to help. By giving suppliers every encouragement to ask questions, study shop operations, products, processes, etc., Westinghouse believes its own profits can be increased.

We congratulate the Westinghouse Purchasing Department on this progressive step and are convinced that it will not only build goodwill but will also prove practical and profitable for their good company. It is realized, of course, that many other companies operate along similar lines but this formalizing of the program by a leading purchasing department is of interest and presents a strong challenge to all suppliers to make good on every contact.

We are glad to report that our own Purchasing Department is taking a page from the Westinghouse book and is following very much the same procedure. We are also glad to report that it has always been the Ryerson policy to have our representatives go through years of training within our own organization before going into the field, so that they are well qualified on all steel products and problems.

So, again we congratulate the Westinghouse Purchasing Department and others who have similar programs because we are confident that manufacturing costs will be reduced, products improved and buying and selling costs cut. In total, we believe that our American economy will benefit by "Operation Co-operation".

RYERSON STEEL

In stock: Bars, structurals, plates, sheets, tubing, alloy and stainless steel, reinforcing bars, machinery & tools, etc.

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CLEVELAND • DETROIT • PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE

BUSINESS OUTLOOK

First reports on 1956 business activity don't tell you much.

January figures, now filtering through, are fully as inconclusive as you might have expected. You can put just about any interpretation on them that suits your own view of the business outlook.

Changes are slight. **Most are normal for this time of year.** And all are reasonable, considering that we have little room to go up.

—•—

Employment declined by more than 1½-million after Christmas.

That may sound pretty substantial, but it actually means very little. About 70% of those who lost jobs were temporary workers, presumably by their own choice.

At least, they weren't looking for other jobs. For that reason, they can't be counted as unemployed.

And January employment, close to 63-million, was **a new high for the month** by a wide margin.

Unemployment, comfortably under 3-million, is actually low for this time of year. The rise of 450,000 from December to January looks particularly unspectacular in view of the automotive layoffs.

Anybody who feels obliged to worry about employment trends will find his best opportunity in certain aspects of **manufacturing.**

Here there was a **drop of 211,000 jobs** between December and January, the Census Bureau reports. This wasn't entirely seasonal.

Moreover, **the average work week** in the nation's factories was reduced from 41.3 hours in December to 40.6 in January.

Factory employment still is high at 16.8-million, to be sure, but fewer workers and shorter hours imply a loss of purchasing power.

—•—

Construction in January turned in a somewhat less robust account of itself than might have been expected from rosy 1956 forecasts.

Official guesses have been placing the value of all construction this year about 5% above 1955. On the basis of preliminary estimates, however, **it looks as if January was ahead by little more than 1%.**

Month by month, **construction's gain over the year before has been dwindling.** January's plus of 1% thus compares with 3% for December, 7% for November, 11% for October, and 17% as recently as last June.

The first half of 1955 was up 20%, the year as a whole only 12%.

Whatever weaknesses may be appearing in the construction figures, it must be borne in mind that January's $2,849-million worth of work put in place was a record for that month. The two things preventing its being even bigger doubtless were:

- **The mortgage money squeeze** that has pinched home building.
- **The materials shortages,** conspicuously in structural steel.

Retail sales in January apparently did no better nor worse than they have been doing. In fact, this statement could have been made about any recent month—each month, from September through December, weighed in with a seasonally adjusted $15.8-billion of retail volume.

This is good in that **the stabilization is at the highest level ever.** And it's good in the light of reduced demand for new autos.

But standing still is never a happy state for any merchant, no matter how high the level at which he may happen to level out.

Worries about the retail situation, such as there may be, largely concern the **inventory situation.**

For all retailers, the **pile-up of new cars** is the obvious answer.

However, it must also be noted that **department store stocks have been rising a bit** in relation to sales.

Partly, this is intentional. There already is some stocking up for an **early Easter.** (And this shows up in fairly high women's apparel stocks.)

And some is to **beat higher prices** when minimum hourly wages rise (affecting textiles and apparel as well as some furniture and houseware lines).

Few retailers place exactly the same weight on today's inventories.

It is true, nevertheless, that **a good many stores feel a need for caution** even though they express no alarm.

—•—

Manufacturers seem still to be in an inventory-building mood, though inventory-sales ratios deteriorated appreciably late last year.

Sales, in fact, were up very little in the fourth quarter. The value of inventories, on the other hand, rose by $1.2-billion or 2½%.

—•—

Inventories in the hands of all businesses—manufacturers, wholesalers, and retailers—rose slightly more than $5-billion last year.

That, in itself, is a big enough figure to explain why many economists talk about the imminence of "a decreasing rate of rise."

But, if you look behind the figures, you find even greater reason for concern: The rate of gain was growing throughout the year; by the fourth quarter it was at an annual rate of about $8½-billion.

Such a rate of gain, most people agree, can't be sustained long.

—•—

There are signs of somewhat **easier supply** in at least one metal:

Zinc, helped both by very high production and declining government takings for the stockpile, had pared unfilled orders to just over 40,000 tons by the end of January (down from 73,000 in August).

—•—

People have less need for large amounts of pocket cash in times like these. More can pay by check for what they buy—or just borrow.

Thus you find that record Christmas sales of $19.4-billion in 1955 were handled without any more money in circulation ($27.9-billion) than had been needed to take care of $17.9-billion of sales the year before.

Contents copyrighted under the general copyright on the Feb. 11, 1956, issue—Business Week, 330 W. 42nd St., New York, N. Y.

Oxford Papers

HELP BUILD SALES

JUST as Stevan Dohanos has pictured here, the "Here's How" booklets of a host of manufacturers of do-it-yourself products have sparked projects like this in homes across the nation.

The makers of these products, like the publishers of many fine magazines, use Oxford Papers to tell a story more effectively. Printers say that Oxford Papers make pictures look more like the product itself. If you would like to see some examples, call your nearby Oxford merchant or write us direct.

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TODAY'S MILITARY SERVICES, WITH THEIR TREMENDOUS TECHNOLOGICAL ADVANCES MADE POSSIBLE THROUGH SCIENCE, OFFER A VITAL REWARDING CAREER

CRAZY molecules help make a cleaner world!

Dirt gets in people's hair. It also gets on a million other things like white shirts, windows, automobiles, floors and baby blankets. How do you remove dirt? With water and soap or water and detergents you say . . . and you're right.

But have you ever wondered exactly what happens? Actually, it's quite fascinating.

The property that makes soaps and detergents so valuable as cleaning agents is the unique nature of their molecules. The head of each molecule is water-attracting and the tail is soil-attracting—a sort of molecular schizophrenia.

In washing, these molecules eagerly attach their tails to the soil with the heads projecting in the water. In such a condition, the molecules with their dirt particles float away with the water.

Over the years, soaps and detergents have become better and better as the industry developed new ways to utilize these molecular properties. Large tonnages of caustic soda and soda ash are required for these products and Columbia-Southern Chemical Corporation,® as one of the nation's leading producers of alkalies, has served the soap and detergent industry since the turn of the century.

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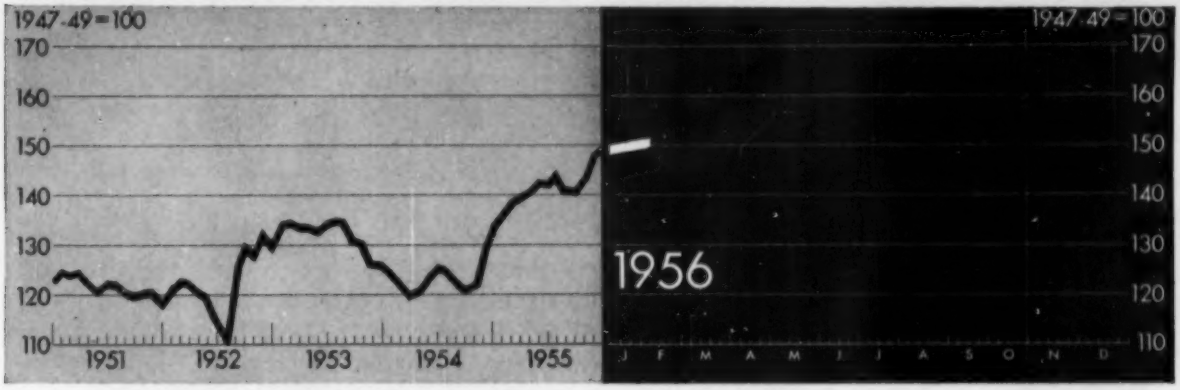
CHLORINE, ALKALIES AND RELATED PRODUCTS — OFFICES IN PRINCIPAL CITIES

FIGURES OF THE WEEK



Business Week Index (above) . . . . .

	§ Latest Week	Preceding Week	Month Ago	Year Ago	1946 Average
Business Week Index (above)	*151.4	150.7	149.3	139.0	91.6
PRODUCTION					
Steel ingot production (thousands of tons)	2,403	†2,444	2,428	2,095	1,281
Production of automobiles and trucks	175,753	†169,263	149,386	190,140	62,880
Engineering const. awards (Eng. News-Rec. 4-week daily av. in thousands)	$85,143	$78,614	$60,564	$45,601	$17,083
Electric power output (millions of kilowatt-hours)	11,540	11,512	11,057	10,047	4,238
Crude oil and condensate production (daily av., thousands of bbls.)	7,081	6,994	7,026	6,721	4,751
Bituminous coal production (daily average, thousands of tons)	1,725	1,757	1,820	1,473	1,745
Paperboard production (tons)	291,570	296,802	182,195	259,402	167,269
TRADE					
Carloadings: manufactures, misc., and l.c.l. (daily av., thousands of cars)	69	70	72	65	82
Carloadings: raw materials (daily av., thousands of cars)	46	47	47	42	53
Department store sales (change from same week of preceding year)	+8%	+3%	+10%	+2%	+30%
Business failures (Dun & Bradstreet, number)	273	284	198	264	22
PRICES					
Spot commodities, daily index (Moody's Dec. 31, 1931 = 100)	407.2	408.8	405.5	413.7	311.9
Industrial raw materials, daily index (U. S. Dept. of Labor BLS, 1947-49 = 100)	99.2	99.5	102.4	92.9	††73.2
Foodstuffs, daily index (U. S. Dept. of Labor BLS, 1947-49 = 100)	76.2	76.3	75.0	90.5	††75.4
Print cloth (spot and nearby, yd.)	20.7¢	20.5¢	20.6¢	19.0¢	17.5¢
Finished steel, index (U. S. Dept. of Labor BLS, 1947-49 = 100)	156.4	155.8	155.6	144.7	††76.4
Scrap steel composite (Iron Age, ton)	$49.50	$50.83	$53.67	$35.83	$20.27
Copper (electrolytic, delivered price, E&MJ, lb.)	44.740¢	43.880¢	44.055¢	33.000¢	14.045¢
Wheat (No. 2, hard and dark hard winter, Kansas City, bu.)	$2.22	$2.22	$2.26	$2.46	$1.97
Cotton, daily price (middling, 14 designated markets, lb.)	34.58¢	34.49¢	33.82¢	34.06¢	**30.56¢
Wool tops (Boston, lb.)	$1.79	$1.77	$1.72	$2.10	$1.51
FINANCE					
90 stocks, price index (Standard & Poor's)	353.5	346.5	354.4	391.5	135.7
Medium grade corporate bond yield (Baa issues, Moody's)	3.58%	3.59%	3.61%	3.46%	3.05%
Prime commercial paper, 4-to-6 months, N. Y. City (prevailing rate)	3%	3%	3%	1¾–2⅛%	¾–1%
BANKING (Millions of dollars)					
Demand deposits adjusted, reporting member banks	57,607	58,735	58,384	57,639	††45,820
Total loans and investments, reporting member banks	84,694	85,209	86,513	85,359	††71,916
Commercial and agricultural loans, reporting member banks	25,690	26,211	26,643	22,054	††9,299
U. S. gov't guaranteed obligations held, reporting member banks	28,822	29,475	29,957	35,799	††49,879
Total federal reserve credit outstanding	25,248	25,480	26,936	25,042	23,888

MONTHLY FIGURES OF THE WEEK		Latest Month	Preceding Month	Year Ago	1946 Average
Employment (in millions)	January	62.9	64.2	60.2	55.2
Unemployment (in millions)	January	2.9	2.4	3.3	2.3
Average weekly earnings in manufacturing	January	$76.36	$79.76	$73.97	$43.82
Personal income (seasonally adjusted, in billions)	December	$315.0	$312.0	$293.4	$178.0
Farm income (seasonally adjusted, in billions)	December	$15.2	$15.4	$15.3	$16.9
Manufacturers' inventories (seasonally adjusted, in millions)	December	$45,859	$45,669	$43,265	$21,238
Wholesalers' inventories (seasonally adjusted, in millions)	December	$12,343	$12,327	$11,506	$5,489
Retailers' inventories (seasonally adjusted, in millions)	December	$23,909	$23,586	$22,089	$9,791
Retail sales (seasonally adjusted, in millions)	December	$15,795	$15,808	$15,123	$8,541
Imports (in millions)	November	$1,064	$1,010	$840	$412

* *Preliminary, week ended February 4, 1956.*
† *Revised.*
†† *Estimate.*
** *Ten designated markets.*
§ *Date for "Latest Week" on each series on request.*

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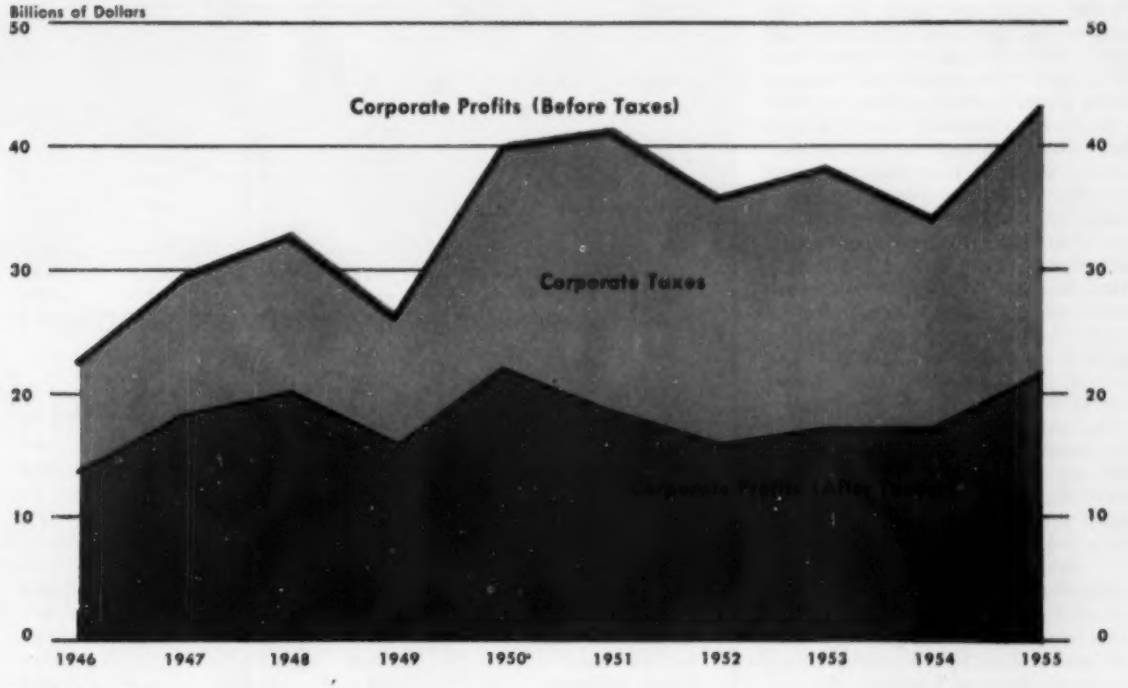
INDUSTRIAL LUBRICANTS

BUSINESS WEEK

FEBRUARY 11, 1956

NUMBER 1380

Corporate Profits



Data: Dept. of Commerce.

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1955: The Runner-Up Champ

Last year will go down in the record books on corporate profits as the most magnificient runner-up ever. Preliminary estimates show that 1955's profits after federal and state taxes totaled $21.5-billion, just $600-million less than the all-time peak hit in 1950, under the spur of the Korean War.

Actually, in one significant respect, 1955 needn't take a back seat to any other year. Profits before taxes were a record $43.2-billion, about $2-billion better than the previous peak set in 1951, and $3.2-billion better than 1950. The big difference between last year and five years ago in the amounts carried through to net after taxes lies in the changes that have taken place in the tax picture during the past half a decade. In 1950, a 42% corporate income tax rate prevailed, compared to last year's 52% rate. (However, profits in 1950 were trimmed somewhat more than 42%, as the excess profits tax operated through the last half of the year.) Also, state corporate taxes have increased steadily since 1950, and are taking a bigger bite than ever out of corporate profits.

• **Third Quarter**—The big build-up in 1955 profits really hit its stride in the third quarter. At that time, pre-tax profits were clipping along at a seasonally adjusted annual rate of $44.5-billion, with after-tax net hitting a $22.2-billion pace. The fourth quarter, according to the President's Council of Economic Advisers, was about the same as the third.

Whether or not this indicates a slowdown in the growth of corporate profits is problematical. For one thing, CEA has long been on the conservative side in its preliminary estimates. Throughout the year, it has consistently estimated pre-tax and after-tax profits lower than they turned out. Hence the revised figures for the fourth quarter may well show further gains, although these are not expected to be so pronounced as those in the third quarter.

• **Higher Costs**—The President's economic report points out that as the year went on the rise in profits tended to slow down. A big factor in the tapering off in the rate of gain was increasing labor costs, and other costs incident to driving business at capacity or near capacity for an extended period. The report also notes that the rise in labor unit costs ". . . became marked around the middle of 1955 and in turn exerted persistent and increasing pressure on both profit margins and prices."

• **Over $1-Billion**—The over-all profit figures don't begin to tell some of the

fabulous tales spun by many annual reports now trickling in. Probably the most fabulous of all is that of the gigantic General Motors Corp., which, as expected, became the first corporation ever to earn over $1-billion in a single year. Net after taxes totaled $1,189-million, according to Pres. Harlow Curtice's preliminary figures. Sales for GM totaled a record $12.4-billion, 27% better than 1954, and 24% above the previous record year of 1953.

GM, like most other corporations, actually racked up bigger percentage gains in net profits than in sales last year. GM's net was 48% better than 1954, and 43% above its previous profits record of $834-million in 1950.

• **Steel**—The showings of GM—and Ford, whose still unannounced yearend earnings and sales have been estimated at $400-million and $5-billion respectively (BW—Dec.29'55,p74)—are reflected in the steel companies, which have thrived along with the booming auto industry. U.S. Steel with net profits 89.4% over 1954, and 66.7% over 1953, finally topped the 39-year-old record it set during World War I. On sales of $4.1-billion, Big Steel earned over $370-million.

The smaller steel companies generally posted gains of 60% to 100% over 1954 net profits, and 30% to 60% over 1953. Sales in many cases, weren't much above 1953, however. Bethlehem's sales were barely higher than 1953, although net was up 34%. Republic Steel and Allegheny Ludlum showed sales a shade more than 5% better than in 1953, but Republic posted a net profits mark 52% better than that year, and Allegheny Ludlum's net was up nearly 88%.

• **Troubles**—Other strong groups included chemicals, building materials, petroleum companies, and auto parts suppliers. The two giants in the electrical equipment field, General Electric and Westinghouse, have both had their troubles over the past year, especially Westinghouse, strikebound for 16 weeks. While GE registered sales and earnings gains over 1954, sales were about 4% below 1953. Net was up around 36% above 1953, however.

From the stockholders' standpoint, perhaps the happiest note in the whole profits picture was that corporations, even though they didn't quite match 1950's net profit showing, paid out more of their profits in dividends than ever before. Cash dividends for the year totaled $10.4-billion, compared to the previous high, hit in 1954, of $9.3-billion. Dividends paid by the nonferrous metals, auto manufacturing, iron and steel, and chemical industries were up from 12% to 35% over 1954, compared to 10% gain for most other manufacturing groups.

A Boom Year for Profits, Sales

	Sales (in millions)	% Gain from 1954	Net (in millions)	% Gain from 1954
AUTOS, PARTS, GLASS				
General Motors	$12,433.0	+34.0%	$1,189.0	+47.5%
Dayton Rubber	69.2	+23.7	2.3	+101.5
Lee Rubber & Tire	45.9	+16.6	1.7	+25.0
Eaton Mfg	218.0	+32.0	13.3	+55.1
Budd Co.	316.6	+30.0	13.8	+120.0
CHEMICALS, OILS				
Allied Chemical & Dye	628.5	+18.4	52.1	+21.0
Atlantic Refining	513.0	−4.6	39.5	+4.7
Gulf Oil	1,524.3	+10.5	166.8	+16.5
Hercules Powder	234.3	+20.3	19.0	+34.5
Monsanto Chemical	522.3	+52.8	42.2	+77.9
Pennsylvania Salt	67.8	+16.6	3.5	+2.7
Standard Oil (N. J.)	N. A.	——	717.0	+22.5
Union Carbide & Carbon	1,187.2	+28.5	140.8	+56.8
Sun Oil	663.7	+0.0	48.3	+20.0
Norwich Pharmacal	24.8	+19.4	2.8	+35.7
ELECTRICAL EQUIPMENT				
General Electric	3,000.0*	+1.3	225.0*	+5.0
McGraw Electric	141.5	+6.6	9.5	+0.9
Westinghouse Electric	1,441.0	−11.9	42.8	−46.4
MACHINERY				
Bullard Company	30.0	−42.3	D1.0	——
Caterpillar Tractor	523.9	+30.6	34.8	+38.4
Cooper-Bessemer Co	38.1	+25.7	1.8	D
Int'l. Business Machines	563.5	+22.2	55.9	+20.1
Int'l. Harvester	1,165.8	+17.3	55.5	+52.9
Lamson & Sessions	38.1	+31.3	2.4	+87.9
STEEL				
Allegheny Ludlum	255.6	+50.3	15.0	+252.9
Bethlehem Steel	2,096.6	+26.5	180.2	+35.6
Inland Steel	659.7	+23.7	52.5	+27.1
Republic Steel	1,195.1	+40.5	86.3	+63.2
Rotary Elec. Steel	54.3	+72.4	3.8	+104.9
U. S. Steel	4,097.7	+26.4	370.2	+89.4
Wheeling Steel	246.7	+31.5	17.3	+80.2
Youngstown S. & T.	627.0	+44.7	41.7	+106.6
MISCELLANEOUS				
Armour & Co.†	1,967.7	−4.4	10.1	+530.0
Container Corp	215.6	+15.5	15.7	+15.4
Liggett & Myers	547.0	−0.3	26.7	+20.4
Marquette Cement	39.6	+5.5	6.1	+19.4
Owens-Corning Fiberglas	161.3	+18.2	10.9	+30.1
Minn. & Ontario Paper	73.2	+4.4	7.0	+16.1
St. Regis Paper	257.0	+28.4	19.0	+27.3
Weyerhaeuser Timber	300.0	+14.3	50.0	+40.8

*Estimated
†Year ended Oct. 29
N.A. Not available
D-Deficit

SECY. GEORGE HUMPHREY REVEALS . . .

Dispute on Credit Policy

Fundamental differences of opinion over how to keep the boom rolling are putting an unexpected strain on the Administration's team of top economic policymakers.

For the first time since the Administration took office three years ago, key officials fail to show a united front in public. The split is over the role of consumer and housing credit; it involves the most powerful men in Washington when it comes to influencing national economic policy:

• Arthur F. Burns, chairman of the President's Council of Economic Advisers, is the man Eisenhower depends on for regular reports on the state of business. Burns is playing an increasingly active role in shaping the Administration's philosophy toward taxes, spending, public works, and the like.

• George M. Humphrey (picture), as Secy. of the Treasury, makes his own readings of business trends. He is one of Eisenhower's closest personal friends, a powerful voice in the Cabinet, and the most influential of Eisenhower's aides when it comes to dealing with Congress. He has disagreed with Burns in the past, but never in public until last week.

• William McC. Martin was recently reappointed chairman of the Federal Reserve Board by Eisenhower. Under the law, neither Burns nor Humphrey nor even the President is supposed to tell the board what policies it must follow in supervising the amount and price of credit. But, in practice, Martin has worked in closest harmony with Burns and Humphrey. Now he finds himself in disagreement with both—with Burns over housing credit and with Humphrey over consumer credit controls.

• **Mostly Agree**—These differences—painful to an Administration that stresses teamwork—have thus far been contained to the two specific issues. On the overriding question of business prospects for 1956, for example, there is substantial public agreement, despite efforts of Democrats at hearings of the Joint Committee on the Economic Report to prove otherwise.

Democrats thought they detected a more optimistic tone in the economic report that Burns wrote for the President than Humphrey implied in his estimates of tax receipts.

In the economic report, Burns expressed the belief—in guarded language—that 1956 would likely exceed record-breaking 1955 (BW—Jan.28'56,p27). When Humphrey appeared before the committee, he expressed the same view—in more explicit terms. He looks for about a 3% rise in personal income, with corporate profit the same as in 1955.

In the tradition of central bankers, Martin makes no sweeping economic predictions. But, despite some lessening of his fears of inflation (page 30), he is cautiously optimistic about projects. That's the same view expressed by Burns in the economic report and shared by Humphrey.

The differences are over details.

• **Open Breach**—The open break came last week when Humphrey told the Joint Committee on the Economic Report that he doesn't like the idea of standby controls over consumer credit—an idea that Burns mentioned favorably in the economic report.

Humphrey did not go all the way in his disagreement with Burns. For a time during his testimony, he seemed to be approving the idea of a Congressional study of controls, which was all Burns asked for. But, under hammering by Democrats, he finally said he disapproves of the power to invoke consumer credit controls even when power exists only on a standby basis.

• **Behind the Scenes**—Humphrey's disagreement stems back to the early weeks of January when Burns was writing the economic report. The original language used by Burns recommended that Congress immediately create standby power to regulate down payments and the length of installment contracts. He did not think such powers should be used now, but he wanted them on the books.

Humphrey strongly objected to this version, and Burns retreated to merely recommending a study. But the report still said that power to control consumer credit "would be a useful adjunct to other stabilizing measures." With this view, Humphrey is now in public disagreement.

• **Who's on Whose Side?**—Washington was astonished by Humphrey's public airing of his differences with Burns, chiefly because it has come to expect the Eisenhower team to take a unanimous stand in public.

On the issue of consumer credit, Martin is loosely aligned with Burns. He is not pushing for the establishment of consumer credit authority, as Burns is ready to do. But he believes such authority might at times play a useful role among the Fed's devices to restrain credit excesses.

In the conflict over housing policies, the alignment is different. Here, Burns and Martin are in direct conflict, with Humphrey on the sidelines but leaning toward Martin's position.

• **Housing Issue**—Burns has been the White House coordinator behind the recent series of moves taken by housing officials to make funds more readily available for mortgages. Thus, he has been working at cross purposes with the Fed's policy of credit restraint. Fed officials privately make no effort to disguise their resentment. They say Burns too readily succumbed to the housing industry's argument that a sharp decline is coming unless restraints are lifted.

Burns's position is that the decline in requests for VA appraisals and for FHA

advance commitments clearly signals a downturn in housing starts later in the year. In the relaxations ordered to date, he has worked closely with Randolph Burgess, Under Secy. of the Treasury. Burgess has publicly defended the easing of restraints. To that extent, he aligns himself—and his boss, Humphrey—alongside Burns.

But there's a difference of opinion over what a satisfactory year for housing would be. In the past, Humphrey has told associates that anything above 1-million starts is a good year; some Fed officials believe 1.1-million in 1956 would be plenty. But the Administration's housing officials are committed to something closer to 1.3-million.

If it comes to opposing additional stimulants for housing, Martin may find Humphrey ranged at his side.

• **Easing Ended**—This week came a hint that, at least for the time being, relaxation for housing has come to a halt. FHA Commissioner Norman P. Mason announced that existing down-payment rules would be maintained; these require a 2% down payment on veterans' mortgages and a 7% minimum on FHA-insured mortgages.

The industry has been hoping they would be reduced, but apparently it is going to have to wait at least a few months for any further assistance.

• **No Crisis**—These differences over economic policies don't stack up to a major crisis. Measured by past squabbles between government officials, the antagonists are positively amicable. However, the growing tension is new for the Eisenhower team—and may yet turn into something more serious.

Credit May Be Eased Soon

William McChesney Martin, chairman of the Federal Reserve Board, tried hard not to tip his hand on credit policy this week when he testified before the Joint Committee on the Economic Report (page 29). But both the things he said, and what he left unsaid, suggest that the nation's monetary managers are moving toward a major turnaround—a shift away from restraint back toward ease in the money market.

In keeping with his central banker role, Martin was circumspect in his testimony. He insisted that it is "actions and not statements that make policy." But this in itself was a sign to experienced money market observers that a major turn was in the works.

The fact is that Martin has not been so reticent during the past few months. He has frequently talked about the need to curb the boom, and only a few weeks ago publicly characterized the Fed's current policy as one of restraint.

• **Change of Tone**—This week, however, Martin expressed uncertainty about the business outlook. Falling back on his favorite analogy that the aim of Fed policy is to "lean against the wind of deflation or inflation," he declared that "it's pretty hard to know sometimes the way the wind is blowing." Under these circumstances, he stated, "we are feeling our way."

This represents a definite change from the restrictive policy the Fed has followed over the past 12 months. Beginning last February, the Fed adopted a progressively tighter policy, except for a pause shortly after the President's heart attack. Early this year, it decided on a subtle shift to "watchful waiting," which was aimed at keeping credit tight but did not involve increasing the pressure on the banks (BW—Jan.14'56,p23).

Marriner Eccles, a former chairman of the Fed, who also testified before the Joint Committee, supported the notion that a shift is in the works. As he sees it, the monetary managers are being neutral rather than restrictive.

Actually, the statistics on bank credit do not indicate a real change from restraint as yet. In fact, last week's Federal Reserve statement showed that member bank borrowings from the Fed were $1-billion, with negative free reserves—the real indicator of tightness—up to $555-million. This is definitely on the tight side.

• **Leveling Off?**—But Martin's insistence that restraint is not being followed is evidence that a new policy is in the making.

Fed officials admit that price tendencies are not so strongly upwards as they were a few months back. The cutback in auto production has resulted in a drop in employment that is larger than seasonal for this time of year. There are signs, according to one Fed economist, that "we may have reached the leveling off point in the boom."

Moreover, the Fed is aware that the Treasury has a major financing on its schedule at the end of the month. Although it is unlikely to lend direct support to this operation, as it did in December, it will probably seek to ease the money market in advance.

Any change in policy would have to meet with the approval of the Fed's Open Market Committee, which meets in Washington next week. Although Martin is No. 1 man in the Federal Reserve System, he prefers to get a consensus before acting. And as all the twelve presidents of the regional Fed banks will be in Washington at the same time, this would be the logical decision for a shift.

More Reactors

AEC is expected to act soon on new applications for various types of small atomic power reactors.

The search for an efficient atomic power reactor to provide electricity for sparsely populated areas is about ready to start. The Atomic Energy Commission announced this week that three rural cooperatives, three municipalities, and a university had met the Feb. 1 deadline for licenses and government assistance in building power plants of less than 50,000-kw. capacity.

AEC's small reactor program is the second stage of its move to develop civilian use of atomic energy. The earlier phase deals with reactors of more than 50,000 kw. Yankee Atomic Electric Co. (a combine of New England utilities), Consumers Public Power District of Nebraska, and a group led by Detroit Edison Co. are working under this large-reactor program.

• **Proposed Projects**—This week's announcement came close on the heels of recommendations by a special panel of the Congressional Joint Economic Committee that favored encouragement of small reactors (BW—Feb.4'56,p31). Variety of design marks the plans of the seven applicants:

• Holyoke (Mass.) Gas & Electric Dept., a 15,000-kw. gas-cooled reactor with closed-cycle gas turbine; designed by Ford Instrument Co.

• Orlando, Fla., a 25,000- to 40,000-kw. liquid metal fuel reactor.

• Piqua, Ohio, a 12,500-kw. reactor moderated by an organic liquid; designed by Atomics International-North American Aviation, Inc.

• Rural Cooperative Power Assn. of Elk River, Minn., a 22,000-kw. boiling water reactor; designed by American Machine & Foundry Co.

• Chugach Electric Assn. of Anchorage, Alaska, a 10,000-kw. sodium-cooled reactor moderated by heavy water; designed by Nuclear Development Corp.

• Wolverine Electric Cooperative of Hersey, Mich., a 10,000-kw. aqueous homogeneous reactor; designed by Foster Wheeler-Worthington Corp.

• The University of Florida, a 2,000-kw. pressurized water reactor.

The university calls for completion in 1959. Other completion dates range from 1959 to 1961.

The variety of designs fits in with AEC's aim of comparing all known types of reactor, and most people look for prompt approval of most, if not all, of the new applications. This week, the Joint Economic Committee opened

hearings on the recommendations of the special panel, which was headed by Santa Fe publisher Robert M. McKinney, and this timing should help to spur early action by AEC.

• **Government Help**—The government's role in the small reactor program is similar to that under the large program launched last year: It provides government-owned nuclear fuel and use of AEC laboratories and testing facilities, free of charge, and AEC pays the reactor builders for technical and economic findings. In the small reactor program, the government also offers some financial aid.

AEC officials say that the government's encouragement of a variety of designs may be keeping the U.S. ahead of Britain and Russia on civilian atomic energy. The British, they say, closely paralleled the U.S. in the early research and development but last year froze their design, settling on the gas-cooled reactor for 12 full-scale commercial plants.

Missiles Run Into Crossfire

Current ruckus over how to run the long-range weapons program is sure to result in a speedup. Pentagon wants a civilian expert to take over.

A political storm has broken out over the nation's multibillion-dollar guided missile program (BW—Nov.12'55,p76).

• Storm clouds first appeared on the Senate floor last week when Henry M. Jackson (D-Wash.) charged that the U.S. is falling behind Russia in the race to develop a long-range ballistic missile. He said this "could turn our strategic thinking upside down" and "might well compel us to write off our overseas bases as virtually useless." Jackson called for a stepup in U.S. efforts and the appointment of a top-level, full-time civilian administrator to run the program.

• Countering Jackson's speech was a disclosure that the Pentagon will soon have a new civilian "czar" to rule the program. Defense Secy. Charles E. Wilson said he is looking for a special assistant to help "direct and coordinate" work on missiles—particularly the strategic ballistic missiles.

• Sen. Stuart Symington (D-Mo.), an Air Force Secretary during the Truman Administration, on Sunday charged categorically that the U.S. lags behind the Russians in ballistic missile development, and started pushing for a full-scale Congressional investigation of the U.S. program. He pooh-poohed Wilson's intention to name a new special assistant. Said he: "They don't need any new czars at the Pentagon. They'd just better clean the place up inside."

• Trevor Gardner, Asst. Air Force Secretary for Research & Development, this week quit in angry protest over what he feels is a lack of urgency in the missile program.

• **Pressure**—It's generally believed in Washington that the Russians have launched several 900-mile ballistic missiles—at least three times the range of the Army's Redstone, the only U.S. strategic ballistic missile now perfected.

The current ruckus over missiles is sure to mean some kind of acceleration of the program. More money is not involved. Wilson and Jackson agree that increased funds are not necessarily the answer. What is involved is the method of running the show. Gardner, for instance, has been peeved over delays in getting top-level Pentagon approval for high-priority research projects.

• **"Doer"**—How much faster the missile program gets going depends on how much power the new czar will get. So far, Wilson hasn't spelled out his new special assistant's exact duties, nor hinted who the man will be. But he says he wants a "doer" and not another adviser. He also said that the new job will be similar to the one held during the Korean War by K. T. Keller, Chrysler Corp.'s recently retired chairman.

Keller came to Washington in October, 1950, as the Defense Dept.'s Director of Guided Missiles, and stayed three years. Before his arrival, the program was a hodge-podge of research and development projects. Keller ordered each service to concentrate on its three or four most promising missiles.

At least three of the seven guided missiles now in heavy volume production can be traced to Keller's efforts.

• **Coordinator**—The job facing the new czar will be of a different type. Pentagon policy now is set at rushing from the development stage into production as rapidly as possible. In fact, some Defense Dept. officials complain that too many new weapons are being mass produced before they are ready.

The new job will be mostly one of pulling strings together and seeing that the wide-ranging guided missile show stays on one road. Right now, there's no Pentagon official on a Secretary or near-Secretary level who puts in full time on missile work.

Meantime, the program is divided among many Defense Dept. agencies:

• The Air Force is responsible for development of the intercontinental ballistic missile (5,000-mile range). Asst. Air Force Secy. Trevor Gardner has been in charge of the project. But as head of the Air Force's over-all research and development operation, Gardner also was responsible for scores of projects unrelated to the long-range ICBM. Maj. Gen. Ben Schriever rides herd on the dozen or so companies involved in the project, but lacks top policy-making authority. Prototypes of certain components are being produced right now, but actual flight of the full-scale missile is a long way off.

• The Army has control over development of a 1,500-mile missile. Chrysler is about ready to start production of a 200-mile ballistic missile, the Redstone, for the Army. For the most part, the 1,500-mile missile will be patterned after it. Maj. Gen. John B. Medaris heads the project at the Army's Redstone ordnance arsenal at Huntsville, Ala.

• The Navy runs a top-priority project to develop means of launching the ICBM for battleships or other vessels. Rear Adm. William F. Raborn is in charge of the Naval phase of the project, which the Navy calls "fleet ballistic missile."

• At least two interservice committees keep tab on what's going on. For instance, Navy Secy. Charles Thomas now heads a Ballistic Missile Committee to coordinate the Army-Navy efforts on ICBM. Asst. Defense Secy. Clifford C. Furnas is chairman of a Joint Coordinating Committee on Guided Missiles. Wilson's new assistant will become chairman of both committees.

• **Election Year Issue**—The Jackson-Symington charges are being billed as only the start of a Democratic plan to buck Pres. Eisenhower's personal eminence as a military leader and make defense a major election year issue.

Jackson called Wilson's plan to name a missile czar "a long-needed step in the right direction," but said "the answer depends on whether the new man will be given the proper tools."

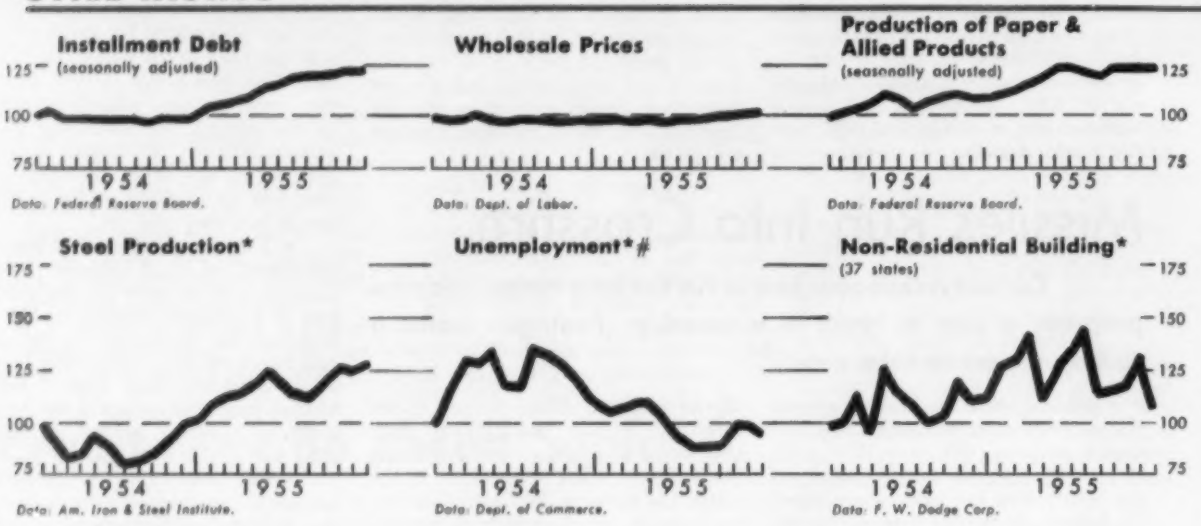
Meantime, Pentagon officials shudder at the label "czar." Wilson himself tried to discourage use of the term.

Says one guided missile official: "I doubt whether Mr. Wilson expects to have a man with absolute authority to do everything and control everything in his name. I would also expect that Mr. Wilson wants a man who takes a diplomatic approach to this, rather than a bull-in-the-china-closet approach."

As for the Jackson-Symington claims of Russian advances, the Pentagon stays mum. Said Wilson: "I would rather not talk about it." Said Gardner: "I won't comment on Jackson's charges. I know too much about it."

Key Indicators: More Are Down

STILL RISING (January, 1954 = 100)



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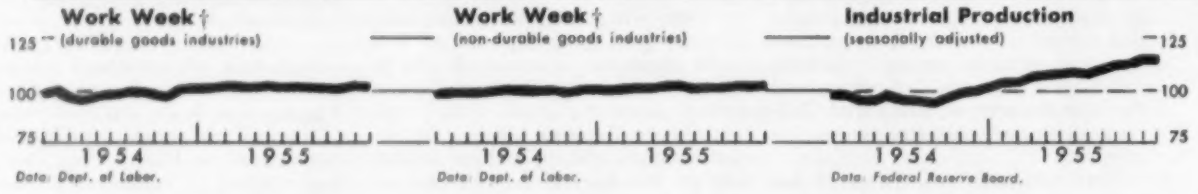
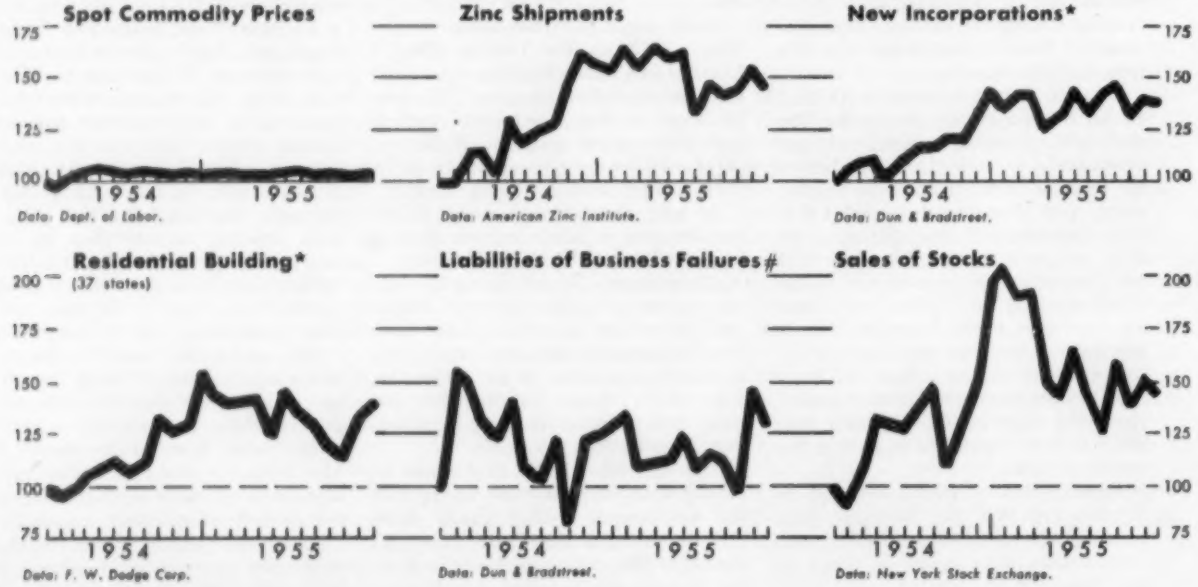


TURNING DOWN (January, 1954 = 100)



* National Bureau of Economic Research Seasonal Adjustment Factor used

\# Inverted Series

† Seasonal Adjustment Factor of National Industrial Conference Board used

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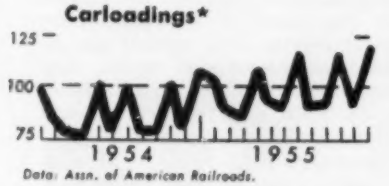
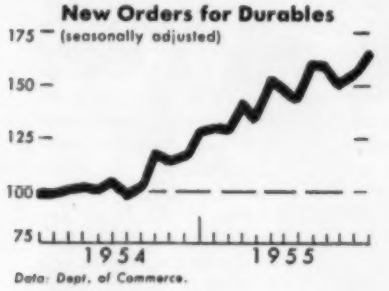
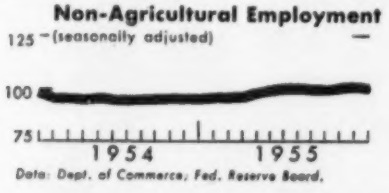
The Big Strike's Pinch Begins

Face-saving formula brings Westinghouse strike near its end, but unless work starts this month there'll be real problems for industry.







KEY INDICATORS charted on these pages are ones that economists watch for clues to the direction in which business may move in the months to come. A few months ago (BW—Oct. 15'55,p25) they were blinking a faint caution signal. Today they are pointing more definitely, though not conclusively, to a change downward.

Ashley Wright, Standard Oil Co. (N. J.) analyst, periodically checks 36 series of indexes. Last June, he found that three of the 36 indicators had passed their peaks and another probably had. In October, he found four peaks and four doubtfuls; in December, seven peaks and two doubtfuls. Now, 11 indexes are definitely over the hill and two more probably are.

The movement of the eight leading series watched by Geoffrey Moore of the National Bureau of Economic Research also indicates a downtrend.

The National Industrial Conference Board keeps an eye on the trend of 12 indicators. This still shows a slight tilt on the side of expansion, but the margin is the smallest in over a year.

Through 16 weeks of a costly strike, Westinghouse Electric Corp. and the International Union of Electrical Workers have wearily debated—in deadlock—a controversial, complex work standards issue (BW—Jan.28'56,p28). While they fought, lost wages and lost business piled up for IUE and management—and the impact of the strike began inspreading slowly into other branches of industry.

This week, in an effort to break the deadlock, both parties accepted a face-saving proposal from the Federal Mediation & Conciliation Service: They agreed to put aside the work standards issue and to get down to brass tacks bargaining on wages and other matters; once Westinghouse was back at work, talks would continue on ground rules for setting work standards (BW—Jan.28 '56,p28).

• **Troubles Coming**—This was a major step toward labor peace for trouble-beset Westinghouse, and toward relief for its customers. Up to now, the outside effects of the stoppage have been limited mostly to inconveniences. But it's apparent that should the strike continue beyond this month, others in industry will face real problems.

Optimistic hopes in industry for a first-day settlement proved unfounded. But in Washington there was firm conviction that the longest major postwar strike was drawing to an end.

• **Stocks Are Gone**—For Westinghouse's customers, as well as for the company itself, time is running out.

A cross-country check by BUSINESS WEEK reporters shows that while the loss of production hasn't yet caused much significant slowing of customers' big capital expansion plans, dealers and manufacturers are getting only a trickle of appliances and small capital goods from Westinghouse. Cancellations by industrial customers have reached "serious proportions" only in the last month, "and this is increasing every day the strike continues," according to reports from several areas.

• **Time and Sympathy**—Some customers have held off switching orders to other manufacturers so far through sympathy with Westinghouse management. A few don't intend to switch orders—because it's too late. De Vilbiss Co., maker of spray paint equipment, says its inventories of equipment it normally gets from Westinghouse are "close to zero," but it feels it would get little help from other suppliers who would take care of their regular customers first.

A large number of companies have found Westinghouse is out of the running on bidding for new orders because it can't promise early delivery dates. Even after the settlement some delay can be expected, because Westinghouse will have to fill distribution pipelines and rebuild its inventories.

• **No Catastrophe**—For industries and utilities making major expansions, the strike thus far has been more of an irritant than a catastrophe. Big electrical equipment can take as long as two or three years to design, build, and install, and most delivery dates are still so far off the strike hasn't hurt such customers—yet.

There are, however, exceptions to this over-all pattern.

• In the Pacific Northwest, Westinghouse has contracts for four 64,000 kw. generators to go into the Chief Joseph Dam on the Columbia River, with operating dates listed as Mar. 1, June 1, Sept. 1, and Dec. 1. Four months is the estimated time for installation. But so far only the housing for the outer shell of the Mar. 1 generator has been received.

• In Birmingham, Ala., the Conners Steel Division of H. K. Porter Co., which is constructing a new electrical steel furnace, reports the completion date, originally scheduled for last December, has had to be postponed indefinitely.

• Detroit Edison Co.'s new River Rouge power plant had a 260,000 kw. generator on order from Westinghouse when the strike began. The plant was to go into operation next November, but this, too, is put off indefinitely.

• Cleveland Cliffs Iron Co. has postponed opening of a new iron ore processing plant, originally scheduled to start in January, until late March, because it lacks vital electrical equipment.

Cancellations of orders for heavy equipment have been relatively few. But some observers think they have been growing recently. A spokesman for Westinghouse's elevator division says: "For a long time our customers have been extremely tolerant. But beginning in January, more and more builders have had to make a reappraisal of the situation in terms of how long they could afford to delay their buildings. If the strike ends, it will be just in time."

For Gas, Freedom—With Strings

● Pres. Eisenhower is expected to sign Congress' controversial natural gas bill.

● Gas prices could—probably will—rise when it's signed, but FPC could still stop huge leaps.

● The bill pleases FPC, because it never did want direct control over gas producers.

The Senate this week dumped one of the most controversial—and least understood—of the measures it will have to deal with this session on Pres. Eisenhower's desk. The measure: the so-called natural gas bill.

Eisenhower is expected to sign it, even though he has not publicly committed himself on the bill. If he does sign it, the law will strip the Federal Power Commission of direct regulatory power over the prices independent producers can charge for natural gas. FPC does not mind this; it never did want the power, anyway, and accepted it only reluctantly in 1954, when the Supreme Court declared that it was stuck with the responsibility under existing law.

• **Price Hikes**—Natural gas prices could, and probably will, rise with the bill's passage into law. What has set off a good part of the controversy are the questions of how much higher the prices will go, and how soon they'll move. Critics of the bill say producers are ready to charge all the traffic will bear. Defenders say that's "hogwash." Many observers on the sidelines note that gas prices rose steadily—but only slowly—before 1954, and they see no reason for any sudden leap (BW—Jan. 21'56,p180).

The chief evidence they cite is this: FPC will continue to have strict regulatory powers over interstate pipeline operators. These powers include a right to veto a pipeline company's contract with a gas producer if FPC finds the contract price is unreasonable.

Key words in the new legislation are "reasonable market price." That's what the bill seeks to guarantee to producers for their natural gas. But the hard fact remains that gas producers—even if they do get out from under FPC's thumb—will remain in FPC's shadow of influence.

• **Victory With Reservations**—The Senate's action was a victory for the oil and gas industry, but it was not an entirely satisfactory one. The Senate set up a special four-man committee to investigate a $2,500 campaign donation offered to Sen. Francis Case (R-S.D.) in what a Senate resolution calls an "alleged improper attempt" to influence his vote. Sen. Thomas C. Hennings, Jr. (D-Mo.), angry with his own party's Senate leadership and with oil lobbyists, threatened to investigate all campaign contributions.

The Case incident involves John M. Neff, a Lexington (Neb.) lawyer who was registered as late as 1955 with the Nebraska state legislature as an oil-gas lobbyist. Neff insisted he gave twenty-five $100 bills to a friend of Case's as a campaign contribution, with no strings attached. Case ordered the money returned, told the Senate about the incident, then switched his voting plans. He had favored the bill, but wound up voting against it.

• **How It Began**—In the fight about production control, one of the most frequently overlooked facts is that back where it all began—in the Natural Gas Act of 1938—Congress (1) gave FPC regulatory authority over pipeline companies transporting gas in interstate commerce, but (2) specifically stated in Section One of the Act that "the provisions of this Act . . . should not apply to the production and gathering of natural gas."

Nevertheless, repeated demands were made that FPC assert such authority. These came from regions that had no gas production, but wanted the fuel cheaply for their industries and homes.

Paradoxically, the demands were based on legal arguments over interpretation of Section One of the 1938 Act. In effect, the case for control sprang from assertions that the specific exemption was intended to cover only sales by producers in intrastate commerce, that gas sold to pipelines for re-sale in interstate commerce was not exempt.

As the postwar wave of pipeline building sent natural gas into new and bigger markets at new and higher prices, the demands became louder. Eleven times, FPC disclaimed either authority, need, or desire to regulate production.

• **Truman's Veto**—In 1950, Congress adopted the Kerr bill (named for Sen. Robert S. Kerr, Oklahoma oilman), which again exempted natural gas production from control. Pres. Truman vetoed the bill, giving consumer protection as his primary reason. And so, for the first time, natural gas became a really big political issue.

In June, 1954, the Supreme Court finally interpreted the 1938 law to mean that the producers' exemption from control covered only natural gas intended for consumption in the state where it was produced. On all other gas, the court said, the FPC should—and must—exercise regulation.

Overnight, FPC found itself with the complex duty of ruling on the flow of gas from virtually every well-head in the U.S. into every interstate pipeline.

While trying to see its way, FPC has declared a general price freeze. As a result, some producers have tried to cut off the gas they supply to interstate pipelines. Reserves have stopped climbing at their former high rate. In 1955, the number of new gas wells drilled decreased 9.7% from 1954. Producers say they are not willing to risk capital to hunt for new gas as long as they're uncertain about prices.

• **Who's Gouging?**—Senate Majority Leader Lyndon B. Johnson, with an eye to giving opponents plenty of time to talk themselves out, made the gas bill the first subject for major debate this session. Under Speaker Sam Rayburn's guidance, the bill had moved through the House last year (BW—Aug. 6'55,p132).

Sen. Paul H. Douglas (D-Ill.) was among leaders of the opposition, hitting hardest on the most appealing angle: money. Passage of the bill, he said, would allow producers to raid consumer pocketbooks to the tune of $750-million to $900-million a year.

Sen. Mike Monroney (D-Okla.), floor manager for the bill, answered Douglas by tracing the cost of New York City's natural gas supplies back to the well-head. He said the well owner received 10.8¢ per thousand cubic feet; the pipeline received 35.3¢ per thousand; and the average residential consumer finally paid a total of $2.43 per thousand to the local utility.

• **Next Move**—All that's needed now is Eisenhower's signature. Every sign says it will be forthcoming. He is understood to have given ranking Republican Congressional leaders private assurance that he will not veto the bill.

Some of his most trusted lieutenants have advised him that the course of wisdom is to free natural gas production. This advice was contained in a 1954 report submitted to Eisenhower by a special Cabinet committee that he appointed to study problems of national fuel policy. Committee members included, among others, Treasury Secy. George M. Humphrey and Secy. of State John Foster Dulles.

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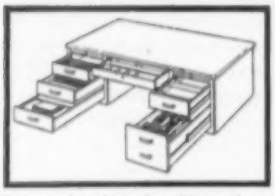

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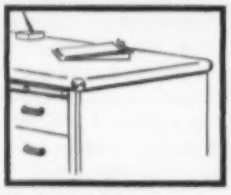

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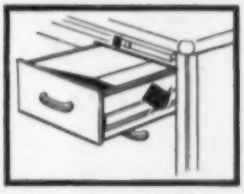

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BUSINESS BRIEFS

Investment on the cuff: The New York Stock Exchange says $28.7-million worth of stocks have been bought through its monthly installment plan since it was started two years ago. In that time 58,200 individual plans were started, and 38,200 were still in effect at the end. Most of the casualties were either one-year plans, or had been shifted to regular accounts.

•

Free world resources: The Cotton Advisory Committee predicts that non-Communist countries this year will produce **2.7-million bales of cotton** more than they will consume. . . . In November, the free world set a record for **oil production,** topping the October figure by 263,500 bbl. a day, trade sources report.

•

The march of jets has a new recruit in Trans World Airlines, last of the Big Four carriers to start converting. Hughes Tool Co., which controls TWA, has ordered eight Boeing jet transports at $4.5-million apiece, for 1959 delivery. And headman Howard Hughes says that 22 more jets will be ordered within a few months.

•

The economic landscape: The Commerce Dept. reports that **personal income** in December hit a record annual rate of $315-billion, beating November by $3-billion. For all of 1955, the rate was also a record—$303.3-billion, compared with 1954's $287.6-billion. . . . **Consumer installment debt** also rose in December, by $648-million, the biggest monthly gain since last June. But the Federal Reserve Board thought the rise probably had slowed in January. . . . **Business prospects** for this year are "good, but not exuberant," says the U.S. Chamber of Commerce.

•

Thinking expansively: A record $120-million will be spent this year by New York's **Consolidated Edison Co.** on new production and distribution facilities. . . . **Borg-Warner Corp.** will build a $10-million plastics plant at Washington, W. Va. . . . **American Viscose** plans a 50% increase in its cellophane capacity, now 100-million lb. a year, by new facilities at Marcus Hook, Pa.

•

No wheat program can help the growers until surpluses are reduced, Agriculture Secy. Ezra T. Benson told the National Assn. of Wheat Growers. But Benson promised to study the NAWG's two-price plan, which would provide high supports for wheat grown for food in the U.S., but little or none for grain sold abroad or used for animal feed.

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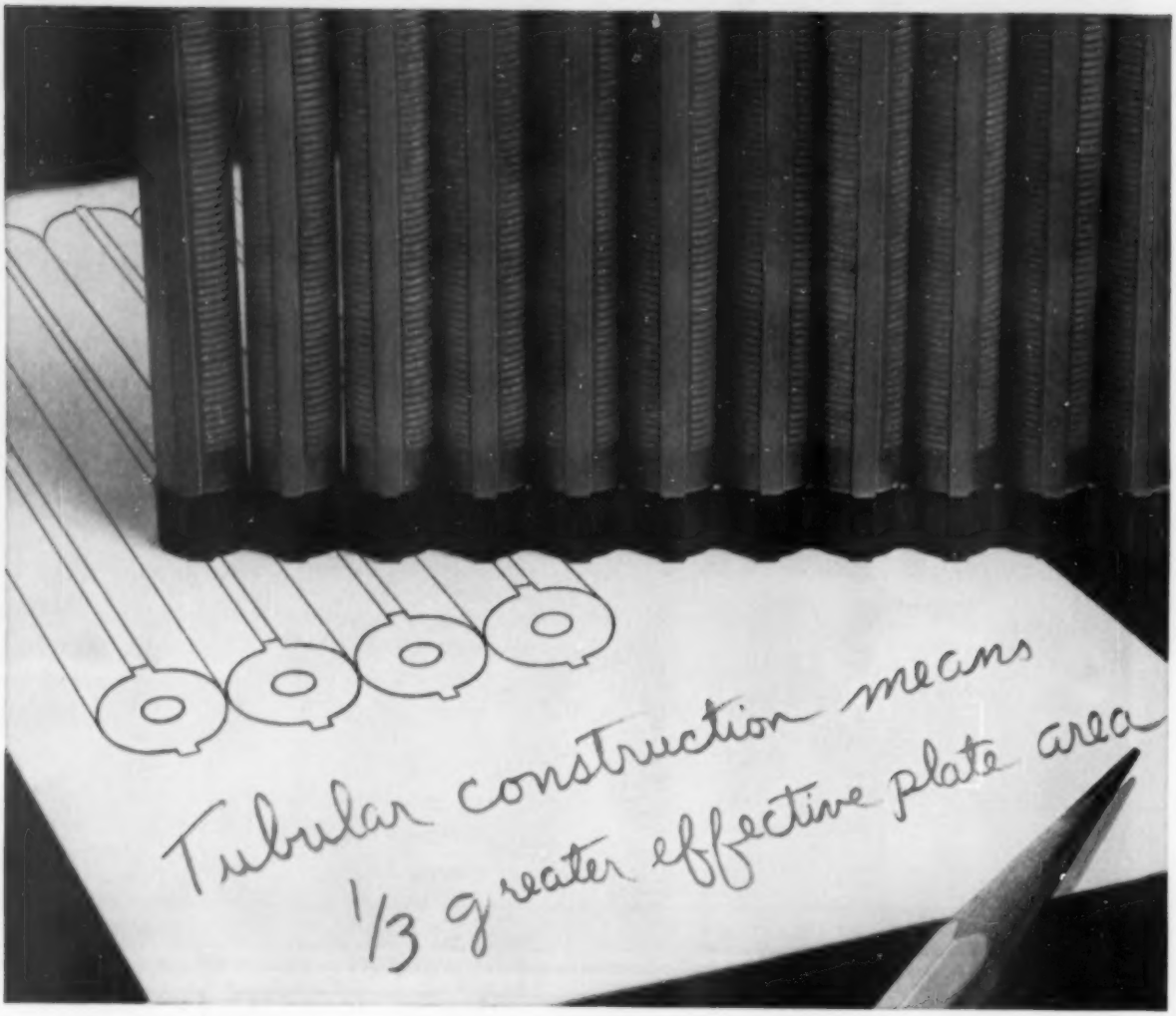

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WASHINGTON OUTLOOK

WASHINGTON
BUREAU
FEB. 11, 1956

Second guessing on Pres. Eisenhower's plans is on the rise. As a result, odds against a 1956 race are melting. **Facts are few, but—**

Men around Eisenhower seem more confident. A reporter gets this feeling as he moves around the town. None of his contacts claims to know what Eisenhower will do. But there is less gloom among the President's staunch supporters.

There is Eisenhower, himself. He talks about the second term freely—with office visitors and at his press conferences, which are getting back on a regular schedule. The President talks of the problems a cardiac faces—the limitations on activities, and future uncertainties. He also talks about the demands of the Presidency—how they exceed those of any other job, and bar anything like a normal life. But a line is drawn: To date he stops short of what he plans to do. And that is significant.

Here is the impression reporters get. Eisenhower would like to say no. But he takes pride in what his Administration has done—the cut in spending, the stability of the dollar, the end of shooting war, the withdrawing of Washington's hand from labor-management relations and so on. Democratic attacks irritate him. And he recognizes that the Republicans have no sure-fire candidate to guarantee continuation of his own objectives. But against this he weighs his worry over whether he can serve out this term, and take four years more. The result is that many men here in Washington who felt earlier that a second-term race was out of the question are now less sure. And it is a feeling that is shared by top Democrats, too. Note, for example, Harry Truman's recent attack, hitting at what he calls a part-time chairman of the board, a Washington regency.

—•—

The fight over highway building will be drawn out, despite the O. K. by the White House of Democratic House plans for a "pay-as-you-ride" bill.

The House may vote the Democratic bill, with higher taxes on gas, diesel fuel, oil, and tires to pay for the bigger federal highway grants. Truckers, who fought last year's plan, are more inclined to go along.

But there will be trouble in the Senate. The Senate voted for the Gore bill last year. This would have financed up to some $2.5-billion yearly of federal road aid out of general receipts—deficit financing if that should be necessary, and it probably would. It will take time for the House and Senate to work out differences. At best it means a late start on the bigger roads program, even if it is finally approved.

—•—

Public works will become more involved in politics. You now can see some of the log-rolling that's going on.

Take New England flood control. It has wide backing. But Western congressmen, especially the Democrats, are advising their New England colleagues on what they had best do to be sure of action. If New England wants federal flood control, the advice goes, then it should get behind such Western projects as the Upper Colorado River development. It's back scratching. But it will make some votes against Administration plans to keep Washington out of new power projects.

—•—

School aid is likely to be blocked again. Efforts by Southern states to get around the Supreme Court desegregation ruling with their so-called

"Interposition" resolutions won't be ignored by Congressional backers of an anti-discrimination clause in the bill. The upshot may well be no action at all.

—•—

The farm aid decision will come later than Eisenhower hopes.

The Senate will hurry its vote. Prospect is that the Agriculture Committee will tie a return to 90% price props in with the Administration plans to cut production through a soil bank and long-term conservation. The vote on 90% will be close.

But there will be delay in the House. What the Senate is doing ties Eisenhower's program, with revisions, into the House-approved bill for a return to 90% price props. The House committee may decide to hold hearings on the Senate bill, rather than send it directly to conference.

—•—

New customs simplification legislation is unlikely this year.

The Senate will make trouble on OTC—the proposed Office of Trade Cooperation. OTC would police the General Agreement on Tariffs and Trade (GATT). Ultimately the House probably will vote to set it up. But Senate Democratic leaders are insisting that Eisenhower line up GOP support to share the responsibility before they call the measure up.

Sugar imports: Congress probably will vote legislation giving domestic producers the big share in rising domestic consumption.

Food additive legislation is in doubt. The dispute between industry and government over the "licensing" approach may block action.

Antitrust legislation will be limited. The bill requiring companies to give the government a pre-merger notification has the best chance.

Industry will get more information on the atom—the peaceful uses. Unless the Atomic Energy Commission loosens up, Congress will force it.

Niagara power development by New York State has a good chance to win Congressional approval. Big argument is that Canada is going ahead.

Bond-issuing authority for TVA is probable. In this way, the big government-owned power "company" would be enabled to meet rising needs without calling on the U. S. Treasury for money. But Congress will insist that each project be submitted for approval.

—•—

Bank holding companies: The Senate will toughen up the House-voted bill to prevent banking companies from owning non-bank enterprises.

Bank mergers may be brought under the control of the general antitrust statutes. No opposition developed when the House voted the bill this week.

SEC regulation of over-the-counter trading hasn't much chance during this session. The idea is an outgrowth of the 1955 stock market hearings.

—•—

The outlook on postal rates:

First class mail—letter rates—probably will stay at the 3¢ level, despite the new request to up them to 4¢ to cut the postal deficit.

Legislation on other rates is unlikely. Congress always is reluctant to tamper with postal charges in election years.

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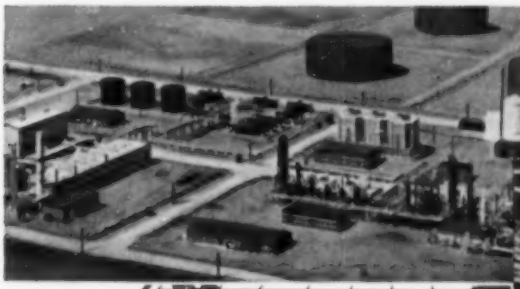
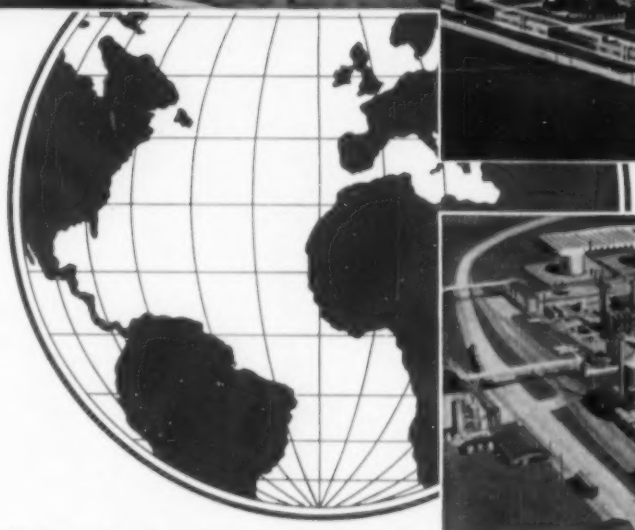
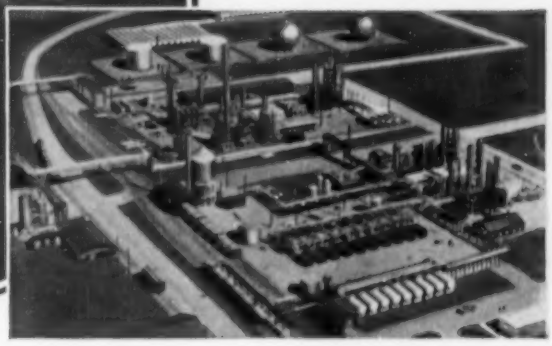
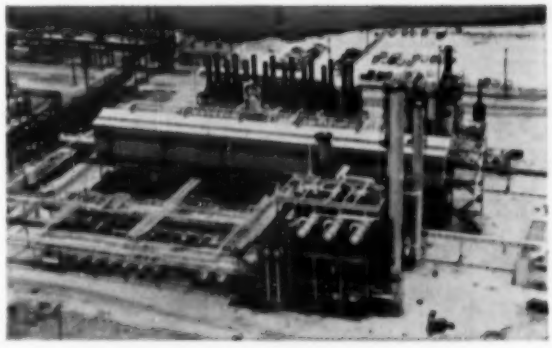
ETHYLENE—LOCATION and ECONOMICS









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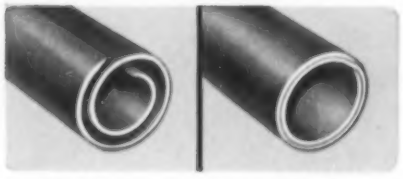

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Toll Roads: Is It the End of The Boom?

This will be a landmark year for highway financing in the U.S., and notably for toll roads. Last year, Congress let three different highway bills slip through its fingers during the squabble over how to finance an interstate system. This time, there seems to be enough bipartisan support to push through the Fallon bill, which would assure stepped up highway construction for 15 years (page 176).

The bill calls for federal spending of $37.5-billion during the 15 years, to be paid in part by $1-billion tacked each year on top of the regular highway user taxes. The government would pay for 90% of the 40,000-mile interstate system, and would match state funds 50-50 for other roads.

• **A Threat**—This program could mean the end of toll road building, at least on the interstate level, according to many investment bankers, engineers, and state highway officials. Most of the prime prospects for interstate toll roads have already been built, or are far beyond the planning stage. The less desirable prospects—which might take two or three years to get on a self-supporting basis—could now be built as free roads, with the federal government putting up 90% of the cost. This deal is likely to attract many states, especially now that some toll roads have encountered difficulties and investors have become choosier about bonds for them.

However, the Fallon bill has one clause that might encourage toll road building, though probably not at the pace of the past few years (chart). This is the system of credits that would be given for existing and future toll roads. It would work like this:

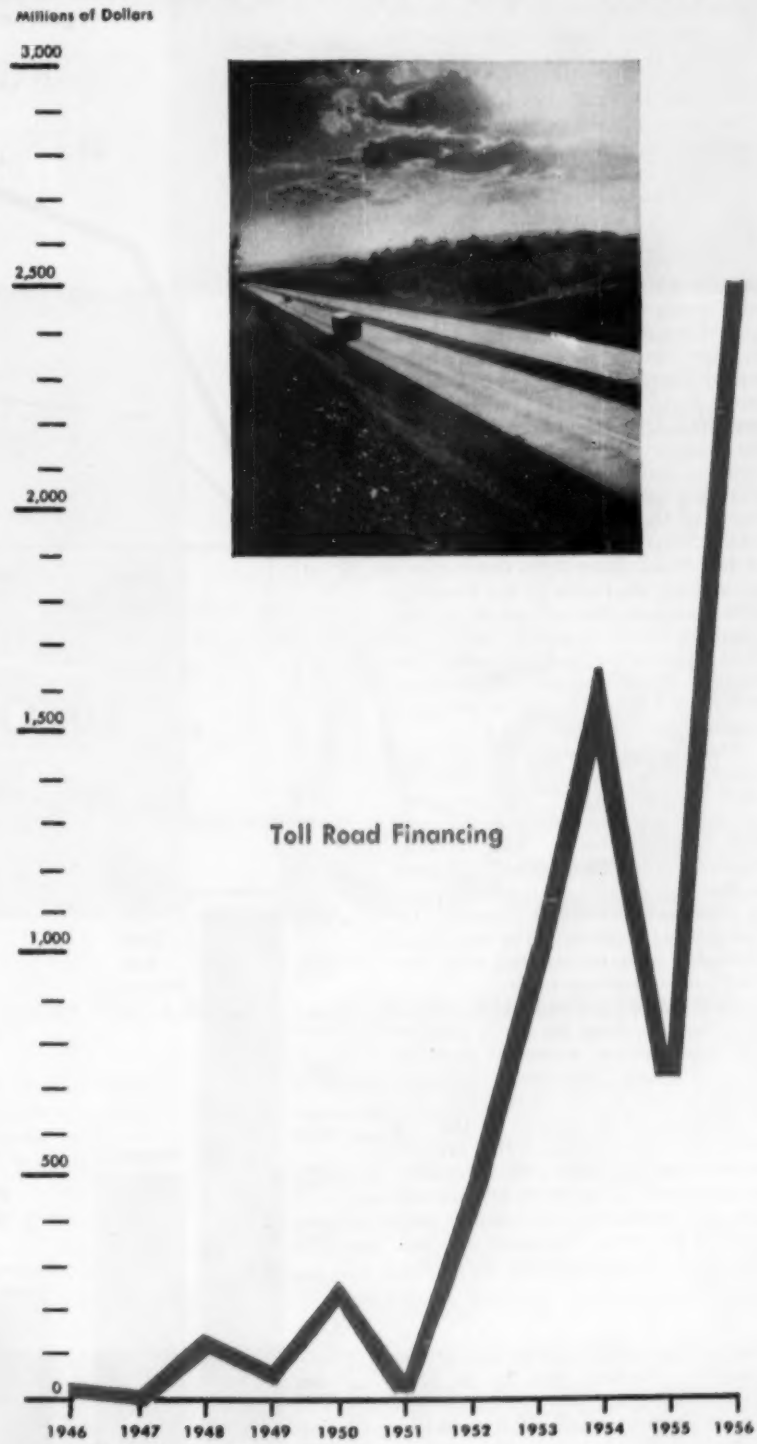
The federal government would pay the states 40% of construction costs, not including the costs of financing, on all toll roads built before the end of 1951, providing they are part of the interstate system.

Those built from 1952 until the end of 1955 would receive credit for 70% of construction costs.

Roads built from the beginning of this year would receive a 90% credit.

• **To Win Support**—These credit provisions were put into the bill to win vitally needed support from the Congressional delegations of the states that have hefty toll road programs. Among these states are such powerful ones as New York, New Jersey, Ohio, and Illinois.

These credits are under heavy fire from automobile groups, and from



Data: BUSINESS WEEK. 1956 Estimate by Tucker, Anthony & Co.

states that have built no toll roads. But if the provisions do survive in the Fallon bill, they may encourage states that have economically sound toll routes to go ahead and build them. The federal credit could then be applied to other roads in the state. But of course the state must match the federal contribution if the road in question is intrastate.

• **Lots of Bonds**—Despite the probable slowdown in building, more toll road bonds should come into the market in 1956 than in any previous year. That's because $3.6-billion of bonds scheduled for 1955 were postponed. Of these some $2.5-billion are expected this year.

There were a number of reasons why all but $750-million of 1955's scheduled bonds were held up. Politics tangled Connecticut's plans for a $100-million offering to extend its Greenwich-Killingly Thruway. Legal action snarled a gigantic ($415-million) issue in Illinois after it had been sold but before delivery of the bonds to the investors. Other issues were affected by changing cost estimates and by a tightening of the bond market. In all, 13 states delayed plans for bond issues.

• **Bad News**—Some states that had held preliminary discussion of the feasibility of toll roads decided to hold off any firm planning until Congress acted. An even bigger factor for delay—perhaps the biggest of all—was the disconcerting failure of a few toll roads to live up to expectations.

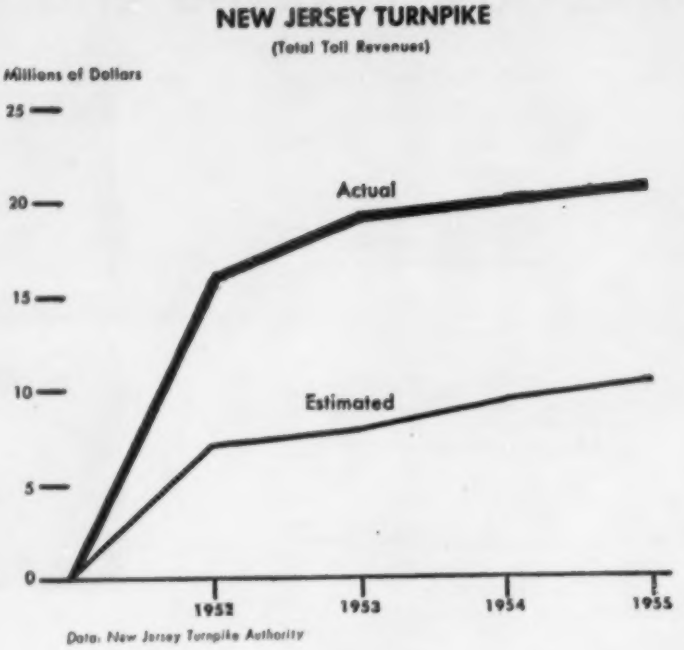
Outstanding in the 1955 toll road story was the West Virginia Turnpike (BW—Aug.27'55,p95); this sorry chapter drew more publicity than the roads that fared far better. The turnpike, financed by $133-million bonds, opened in November, 1954, with much fanfare as a link between the Midwest and the fast-growing Southeast. The road winds through a mountainous area with practically no competing roads.

Coverdale & Colpitts, an engineering firm that has done the lion's share of toll road surveys, estimated that the West Virginia Turnpike's 1955 tolls would be $5,237,000, about 71% of it to be provided by trucks. As the year wore on it became evident that the estimates were way high. By December, revenues had fallen short by $2.5-million, and trucks were contributing only 31% of the total. The bonds were selling nearly 30 points below their offering price.

• **The Whys of It**—Some engineers blame the showing on the poor condition of the roads at either end of the turnpike. Truckers, they say, see little sense in struggling over these bad roads just to use the 88 miles of new road.

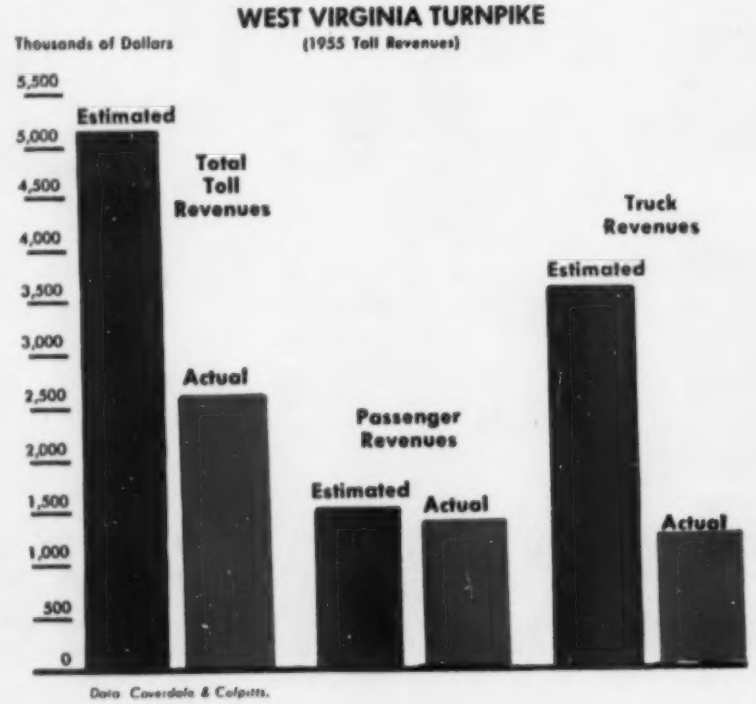
George W. Burpee, senior partner of Coverdale & Colpitts, has a different explanation. "West Virginia suffered an economic decline last year," he says,

Some Toll Roads Pan Out . . .



Data: New Jersey Turnpike Authority

. . . But Others Don't



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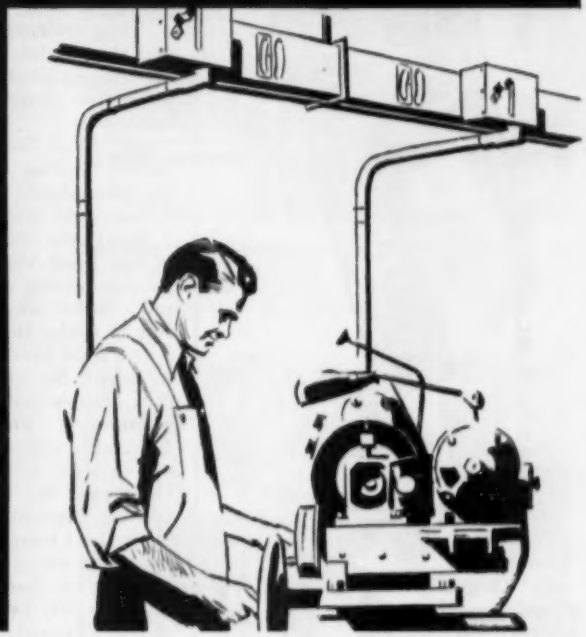

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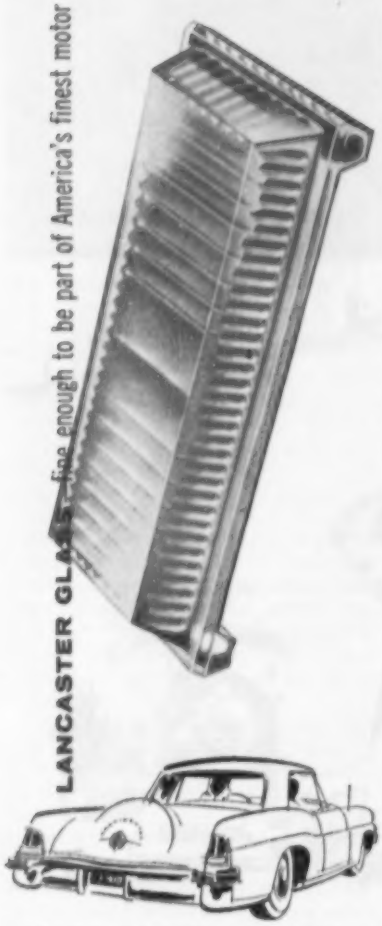

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". . . one engineer says, 'We have learned that there just ain't such a thing as long-haul traffic' . . ."

TOLL ROADS starts on p. 43

"and this was the principal reason for the fall-off in truck traffic." Burpee, like most others interested in the pike, thinks that West Virginia will be out of trouble in a couple of years. Meanwhile, the state has enough reserve funds to make up deficiencies in interest payments, at least until 1958. Indeed, traffic and earnings have picked up a bit of late.

Just the same, Smith, Barney & Co., a leading underwriter of toll road bonds, says that "unless some drastic measures are accomplished within the near future, this turnpike will face serious trouble."

One Wall Street banking house is already drafting plans for refinancing the pike, should the state decide such action might help.

Right now, the Judiciary Committee of the West Virginia House of Delegates is pressing an investigation of the pike. It has already urged the legislature to pledge the state's credit behind a new bond issue of some $200-million to extend the road to the north, and thus possibly bail it out.

• **Buckeyes, Too**—Ohio is another state with toll road troubles, though not so acute as West Virginia's. The Ohio road has found truck revenues running substantially below estimates. Trucks have been expected to contribute 44% of traffic and 73% of tolls. Instead, in the first three months, trucks made up only 14% of traffic and 32% of tolls. Turnpike officials are weighing a cut in the truck tolls, which the carriers say are too high.

Ohio has throttled back on its long-planned North-South Turnpike, originally scheduled to cost around $525-million.

Engineers are now trying to eliminate between $170-million and $200-million of this projected construction, in order to make the road more palatable to investors.

• **Investment Caution**—Of late, investment bankers and long-term investors—notably life insurance companies—have been fixing a chillier eye on the toll road bonds, which they used to favor because of good yields bolstered by federal tax exemption and steady earnings records. One underwriter explains the new caution this way: "We've passed the day when the mere mention of toll road bonds could cast an aura of enchantment—the whole situation is being very carefully appraised right now."

• **Short Hauls**—As knowledge of toll roads has increased, one bit of fiction has been laid to rest: the idea that the profitable toll road is a straight long line between two urban centers. Now one engineer says, "We have learned that there just ain't such a thing as long-haul traffic."

On the highly successful New Jersey Turnpike, lying between the nation's largest and third largest cities, the average trip is only one-third of the pike's length; only 6% of traffic goes the whole way. On the Pennsylvania Turnpike, as new sections have been opened boosting the maximum possible toll, the actual average toll paid has risen at a much slower pace. When the pike reached its full length, the maximum toll had grown to $3.75, from the original $2. But the average toll climbed only 10¢, to a modest 95¢.

The engineers have concluded that the most profitable toll road is a fairly short one between large commercial centers. But only a limited number of such routes remain to be built, which indicates another brake on future building.

• **New Pattern**—According to some engineers the whole pattern of truck traffic is changing, and no large-scale toll projects should be undertaken until the trend becomes clear. For one thing, more and more drivers are being paid per trip, instead of per hour, which means that time as a factor is less important in figuring whether or not to use the faster, but more expensive, turnpike.

In some areas, the very excellence of the turnpikes has backfired. The toll roads have attracted so much non-truck traffic that the adjacent roads have been left relatively free—and the truckers have happily returned to rolling free on the old and now unencumbered roads. Even the high-speed, non-stop driving of the turnpikes has been found by truckers to increase fuel and maintenance costs.

One school of thought has it that railroad piggyback competition, by cutting into all trucking, will affect the toll roads. Moving trailers by piggyback has enjoyed increasing success, especially in New England and on the New York Central's westward runs. Coverdale & Colpitts' Burpee says, "The railroads are waking up—they're trying to move packaged freight in much faster time than ever before."

Still, most engineers agree that for the long term truck traffic as a percentage of all traffic will continue to grow, and since it pays the biggest tolls it

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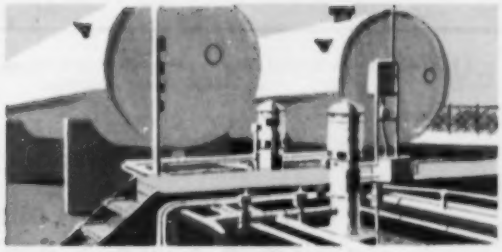

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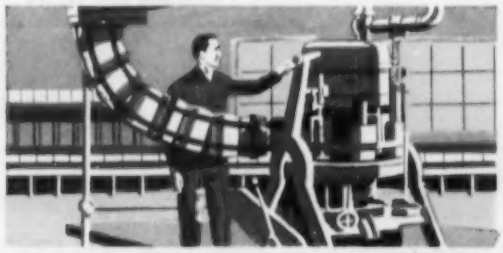

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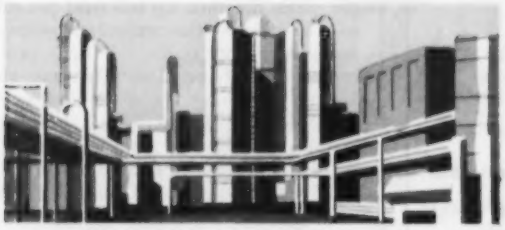

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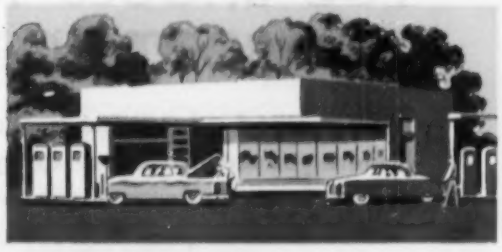

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will continue to increase the turnpike revenues.

Already, and despite all talk of changing patterns, most toll roads have done very well indeed. Revenues of the Pennsylvania Turnpike have grown steadily since the end of World War II. The New Jersey Turnpike has run so far ahead of the engineers' estimates of earnings (chart, page 44) that it has embarrassed the experts nearly as much, though more happily, than the West Virginia Turnpike.

• **Background**—Toll roads are nothing new on the American scene; they had quite a boom in the early 19th Century. Then they fell into eclipse, with the revival not beginning until 1940, when the Pennsylvania Turnpike began its immensely successful career.

During the war, plans were hatched for a nationwide highway system, and the states dreamed up toll road projects to cope with the expected postwar burgeoning of traffic. When peace came, the Maine Turnpike was the first to get going. In 1948 and again in 1949, the Pennsylvania Turnpike financed extensions with bond issues. Finally, in 1950, the total volume of toll road bond offering reached $200-million.

In that year, the Jersey Turnpike issue was the biggest single issue, but Oklahoma's Turner Turnpike and the Denver-Boulder road in Colorado also came on the market. The boom was under way, though it petered briefly in 1951 with a mere $35-million supplemental issue in New Jersey.

• **Going Up**—In 1952, the total offering reached $494-million, for 361 miles of road. Ohio's $326-million issue was the largest up to that time; West Virginia, Oklahoma, and Pennsylvania also floated toll road issues. In the following year, the total reached $1,019-million—more than all previous years put together. Issues were floated by New York, Maine, and New Jersey—the latter for both the Turnpike and the Garden State Parkway.

The climb continued in 1954, which topped the 1953 total by $500-million. Massachusetts, Connecticut, and Kentucky were newcomers who joined New York, New Jersey, Oklahoma, and Pennsylvania at the toll road trough. Through 1954, toll road bonds had added up to $4.7-billion, for 2,382 miles of pike. Then 1955, on paper, scheduled $4.4-billion, with the single year threatening to equal all that had gone before. It looked huge, but it fizzled, as issue after issue was deferred down to a meager $750-million.

How much of a comeback there may be this year will hang on the effect of the federal highway bill, plus the same considerations that prevailed last year, sharpened by the record of the few roads that are in trouble. END

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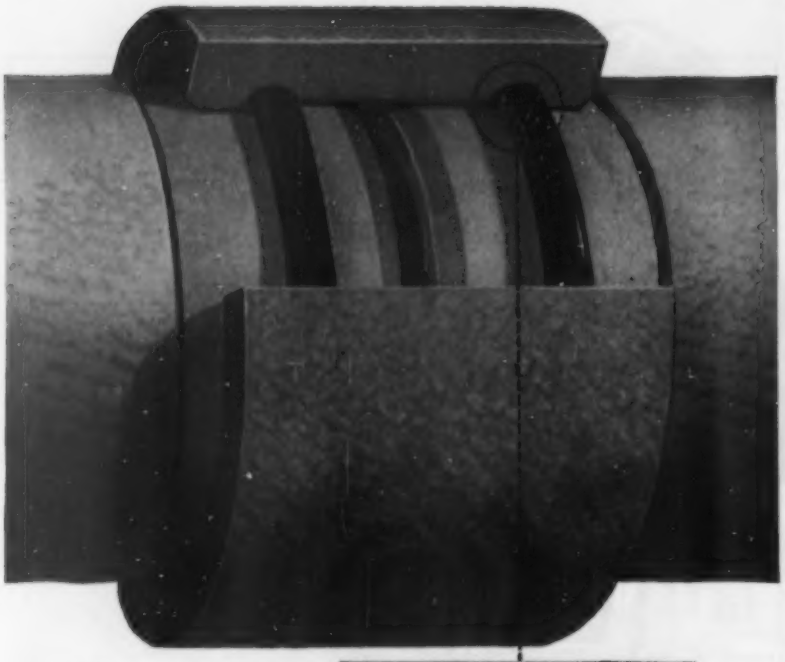
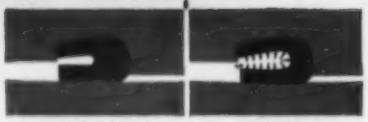


SELF-ENERGIZING SEALING RINGS allow pipe to slide into "Fluid-Tite" Couplings easily. Water pressure automatically expands the rings. The higher the water pressure, the tighter the seal.



"Fluid-Tite" sealing rings have tapered surfaces, and compress, to permit pipe to slide in easily.

When main is filled, rings expand with application of internal water pressure, creating a tighter seal.

New Coupling Makes Possible Even *More* Tax Savings with "Century"® Asbestos-Cement Pipe

The many tax-saving advantages of "Century" Asbestos-Cement Pipe for water mains are already recognized by civic planners. Now, with the development of the new "Fluid-Tite"® Coupling*, water-main installation and maintenance costs are cut to the barest minimum—and tax savings are further reduced.

"Fluid-Tite" Couplings simplify pipe-laying, cut installation time, provide a permanent, water-tight seal. Thanks to the new ease of pipe-laying with "Fluid-Tite" Couplings, water-main installation need not be halted in rain or snow, or wet trench conditions. Low installation cost minimizes carrying charges over the years.

*Pat. applied for

• **"Century" Pipe serves for generations.** "Fluid-Tite" Couplings add to the already great economy of "Century" Pipe. Made of asbestos and portland cement, "Century" Pipe cannot corrode. Its bore remains smooth and clean permanently, keeping pumping costs low.

KEASBEY & MATTISON COMPANY
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Please send me information on "Century" Pipe and the new "Fluid-Tite" Couplings.

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FINANCE BRIEFS

$7.8-billion and a new record: That's the yearend report on assets of the open-end investment trusts, made by the National Assn. of Investment Companies. The total was 22% above the $6.1-billion assets at the end of 1954, and double the 1952 figure. Last year's net sales—new share sales less redemptions—also set a record at $765-million, only 15% under the two-year total of 1953-1954.

•

Very rapid progress is being made in the study of a proposed merger of the Chicago, Milwaukee, St. Paul & Pacific RR with the Chicago & North Western Ry., according to J. P. Kiley, president of the Milwaukee (BW—Oct. 23'54,p69). Wall Street hears that one early finding is that the merger could produce a $25-million annual cut in operating expenses. But the marriage is likely to be heavily opposed by many municipalities and by the rail unions.

•

Transamerica Corp. continues to expand its chain of banks (BW—Oct.8 '55,p56). It has just bought up the outstanding stock of Salt Lake City's Walker Bank & Trust Co., which recently reported resources of $151-million. A month ago, Transamerica picked up majority control of three Idaho banks, with resources of $43.6-million.

•

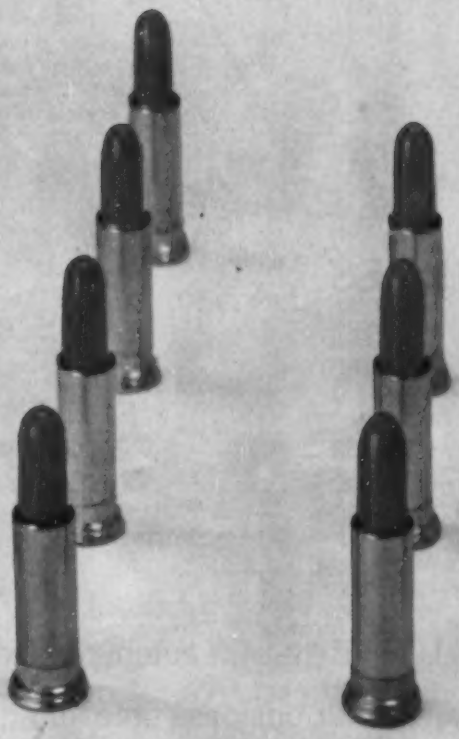
3% on savings will soon be paid by two more savings banks in New York City. The boosts will be made by Bowery Savings Bank, the largest U.S. mutual, and Drydock Savings, which ranks eighth.

•

Private placements: $100-million 20-year 4% senior and junior subordinated notes ($50-million of each) by C.I.T. Financial Corp.; $45-million 100-year 3¼% notes by International Business Machines; $25-million 20-year 3¼% notes by Associates Investment Co.; $25-million 25-year 4½% notes by General Tire & Rubber Co.; $12-million 20-year 3½% debentures by Province of Nova Scotia (all were placed in the U.S.); $10-million 25-year 4½% convertible capital notes by American Investment Co. of Ill.

•

Investment trust portfolios recently held $103.2-million worth of aircraft manufacturing shares, plus $60.4-million in air transport stocks. North American Aviation was the most popular of the aircraft shares, with $32.2-million spread among 35 individual trusts. American Airlines led the carriers with $12-million, spread among 33 trusts.



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Revlon uses Atlantic Papers!

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THE BELL SYSTEM ANNOUNCES

THE BELLFAST

A new teletypewriter relay system with automatic features that can save your business time and money

The **BELL*FAST*** is a new high-speed, low-cost private line system designed to serve a wide range of business needs. It is backed by 40 years of Bell System experience in teletypewriter communications.

Any business requiring fast communications between several cities will find the **BELL*FAST*** particularly suited to its needs. The **BELL*FAST*** quickly and accurately transmits all types of business messages including sales orders, inventory records, production schedules and statistical data from punched cards. The information can be received as page copy or as punched tape (for data processing).

How the BELL*FAST* works

A message in the form of a punched tape is placed in a transmitter at an outlying station. Equipment at the relay center causes the transmitter at the distant point to operate automatically.

When the message is received in tape form at the relay center, it is put in a transmitter connected to the destination station and sent on its way by simply pressing a button.

Messages can be directed by push buttons to several stations on one circuit or on several circuits—or to all stations simultaneously!

Extra Advantages

In addition to its distinctive automatic features, the relay center equipment of the **BELL*FAST*** is compact—consoles occupy a minimum of floor space. The basic relay unit of the **BELL*FAST*** can handle up to six circuits and can accommodate up to ten stations per circuit. It's *flexible*—can be readily expanded by adding additional consoles. And it requires a minimum of operating personnel.

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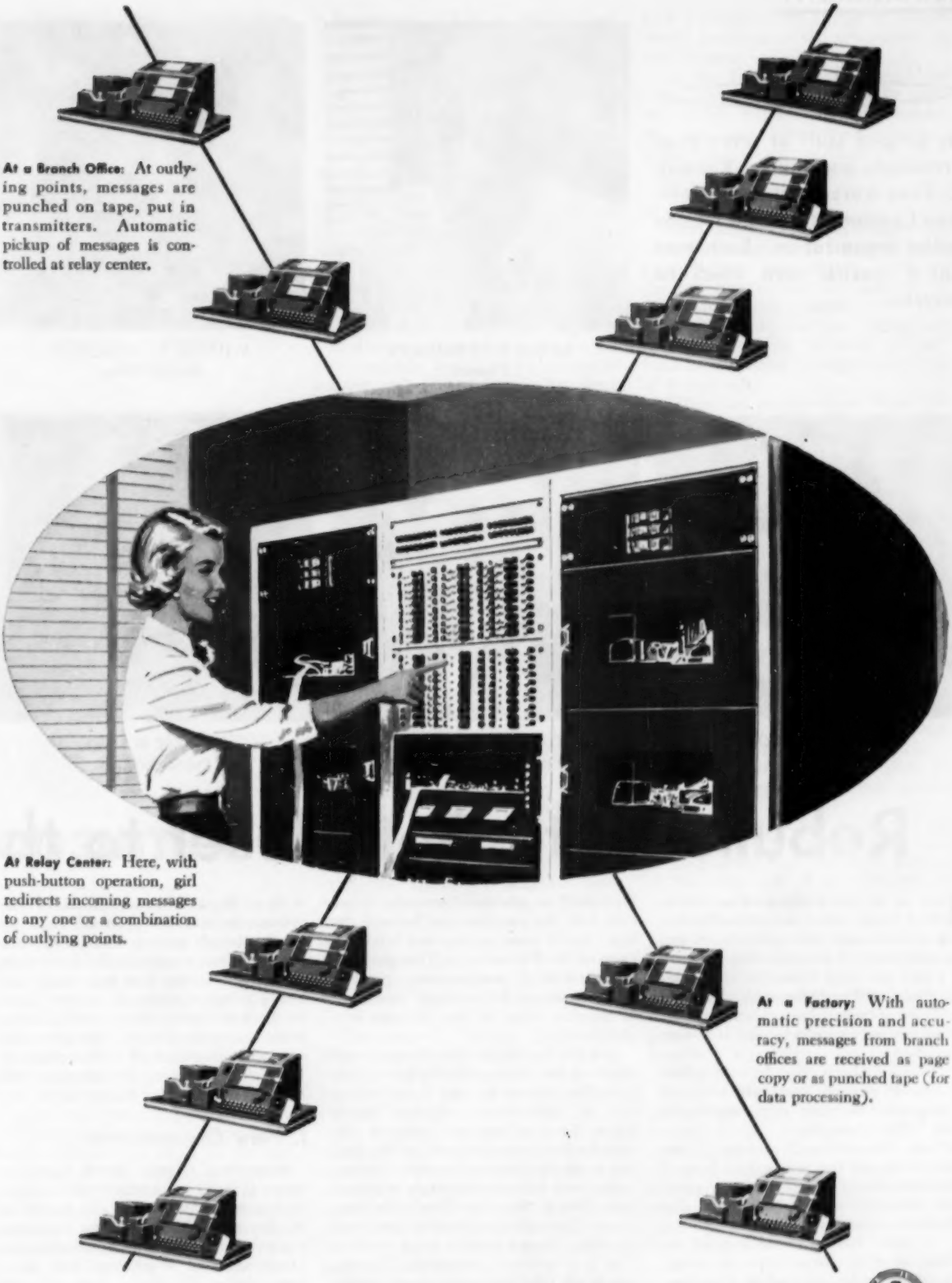
A Bell System communications engineer will be glad to show you how the BELL*FAST* can be used in your business. There's no obligation, of course.



At a Branch Office: At outlying points, messages are punched on tape, put in transmitters. Automatic pickup of messages is controlled at relay center.

At Relay Center: Here, with push-button operation, girl redirects incoming messages to any one or a combination of outlying points.

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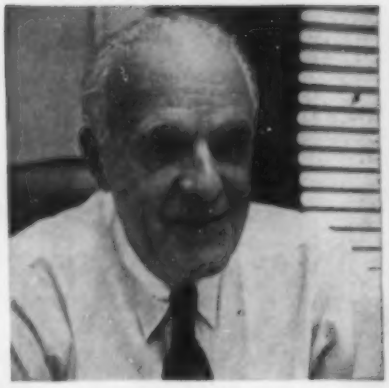
TELETYPEWRITER

CYANAMID

Its general staff of seven vice-presidents under Pres. Kenneth C. Towe (cover) makes up American Cyanamid Co.'s new topside policy organization. Each man has a specific area which he oversees . . .



LEWIS C. PERKINSON
Finance

WILBUR G. MALCOLM
Merchandising

SIDNEY C. MOODY
Personnel

EDWARD D. POWERS
Engineering-Operations

ROBERT B. FISKE
Public Relations

Rebuilding to Get Closer to the

JUST AS IN THE CAREER of an executive, there comes a time in the history of a company when past events and present trends slip neatly into place.

That's the stage American Cyanamid Co. finds itself in today under Kenneth C. Towe, president (cover), and his staff of seven vice-presidents and 10 division chiefs.

There have been other turning points in the 48-year-old corporate story of Cyanamid, but none more significant than 1956 is bringing.

• **New Departures**—American Cyanamid starts out this year with a host of developments—in organization, products, research, markets—likely to alter its direction and character:

• After two years of studied rearranging of the top corporate setup, the company has squared its traditionally decentralized operating nature with a recognized need for planning and control.

• A hiatus of some five years in acquisitions that became a part of Cyanamid is scheduled to come to an end with the purchase in the near future—unless some unexpected hitch occurs—of the Formica Co. This purchase fits in with a companywide plan to move as many of Cyanamid's products as possible closer to the ultimate consumer.

• On top of this, the company will make up its mind—probably before July—whether or not to take a major leap into an entirely new market, textile fibers. Long a basic raw material supplier in this area, it is now in the final stages of deciding to market Creslan, trade name for an acrylonitrile synthetic yarn. The betting: It will make the leap.

• Two other important new products may also get a major boost in 1956. One is a systemic insecticide, Thimet, the kind used to treat seeds before planting to ward off pests. The other is an antibiotic, Acronize, now to be used as a food preservative—it's already approved by the Food & Drug Administration for poultry.

• **New Mark**—The sum total of the events scheduled for 1956 will chalk up another bench mark in Cyanamid's history, if Towe's calculations work out.

Last fall, in his first appearance before a group of financial analysts since he became president in 1952, Towe made this prediction: ". . . gross income somewhat in excess of $500-million in 1956"—the first time the company will have crossed the half-billion mark.

I. New Organization

Kenneth C. Towe, North Carolina-born (1893) accountant who never made a book entry in his life, would be the last to put himself on the same corporate pedestal as his predecessors—Frank Sherman Washburn, first president; James B. Duke, tobacco and power king, and the financial genius behind Cyanamid; or William B. Bell, long-time chief authority of the company, who was still chairman of the board when he died in 1950.

ROBERT C. SWAIN
Research

GEORGE R. MARTIN
Law

Consumer

But those who know Cyanamid's history mark Towe's selection as president—after death ended the one-year tenure of R. C. Gaugler—as the point when Cyanamid recognized itself for what it was—a corporate unit in the highly diversified field of chemicals that needed top-level controls and direction.

As a company, Cyanamid has grown swiftly over the years, through diversification from research and acquisitions. It covers most major fields of chemistry, including pharmaceuticals made by its Lederle Laboratories Div. In the past few years it has dipped into petrochemicals through a joint venture with the Texas Co.; synthetic rubber by a one-third ownership of American Synthetic Rubber Corp.; and even oil and gas by joining with Pittsburgh Plate Glass Co. in a company owning properties in Texas.

From its start as a basic producer of fertilizers, it has spread itself out right along with the growth of the chemical industry as a whole.

• **Revamping**—What it didn't have, though, was a modern organization. That's Towe's contribution.

Towe describes his ascendancy this way: "I was moved (as treasurer) from a back room to the front porch almost overnight, and without any forewarning. I had to develop a management code overnight."

Since then, this diffident, self-effacing chief executive has arranged the Cyanamid organization to fit the complexity of its business.

In the past two years—"with the advice of Crawford Greenewalt of du Pont and presidents of other companies"—he has established (1) a definite organization structure whose major changes are now complete, and (2) a philosophy of management derived from a few hard, practical tenets.

As Towe puts it: "A sound form of organization is the answer to every business problem. A poor organization can run a good product into the ground; and a good organization with a poor product can run a good product out of the market."

• **Unscrambling**—Towe's first job, as he saw it, was to sever a tradition-bound knot of staff and line mixture.

"We had 11 vice-presidents at one time," he says, "and all of us were mixed up in everything."

A division manager would sit on the finance committee, taking action on his own projects. Towe adds:

"I can never see how a man can vote on something—without some prejudice—that will change policy affecting him."

Today, no operations executive sits on a policy group.

• **Bringing Together**—Those who surround Towe now as staff and operating chiefs—the entire top staff has been turned over since 1944—agree that before Towe Cyanamid was a sort of feudal state of autonomous kingdoms, each division concerned with its own problems, and without clear lines of authority to top-level officers for major decisions.

One general manager, Richard E. Sumner, head of the Industrial Chemicals Div., claims the "divisions were principalities." Now, he adds, the "iron curtains" have been removed.

To accomplish this wasn't an overnight job for Towe. But when he took over, he made his point as clear as possible in statements to the vice-presidents—who acted as staff advisers to operations—and to the general managers, the men responsible for profit-and-loss in their divisions.

He told division chiefs: "The worst mistake you can make is one made without consulting the vice-president in your area."

Then he told the vice-presidents: "The worst mistake you can make is to have a substantiated charge of unwarranted meddling in the prerogatives of the divisions."

• **At the Top**—Today, Cyanamid has its vice-presidents categorized by function—public relations, law, merchandising and sales promotion, personnel, finance, engineering and operations, research and process development.

These men make up the top policy committees.

Towe himself keeps in close touch with the business in a couple of ways. First, he gets daily activity sheets—on the full product line of hundreds of items—three times a week.

But he counts most, on judging men and operation, on "a word picture" from each division manager every 10th of the month.

"There are no figures in these," he says. "I used to get alibis for their being late, but if a report takes more than two hours to write, then the men know I know they aren't on top of their jobs."

In addition, each division manager once a month makes reports personally to Towe and his "general staff." These meetings, new to Cyanamid, make it necessary for the managers to be ready to answer any questions about their operations that may be thrown at them. They also get a chance to display some forward thinking. For instance, one manager next week plans to talk over his personnel problem—where he stands against four years ago on age groups, capabilities of his men, and the like.

• **Goals**—Actually, Towe has given his division managers just three specific jobs:

• Sell the biggest volume at the highest price obtainable, legally—and he emphasizes that last word, perhaps as the outgrowth of an antitrust suit the company now faces.

• Manufacture at the lowest possible cost, but maintain quality.

• Keep inventories "within reasonable limits."

• **No Inbreeding**—Beyond these, there is one other firm rule as a direct outgrowth of Towe's management philosophy: absolutely no corporate nepotism.

No two top men in a division—the general manager and his second in command—can have come from the same division. To Towe's way of thinking, this does two things. First, it assures a cross-fertilization—a favorite word of Towe's—of the company's executives, avoiding the inbreeding of separate divisions.

Secondly, it makes certain that young men—those Towe spots as men who ought to have "the chance to demonstrate the ability I thought I had when I was their age"—aren't locked into a job because of organization.

This cross-fertilization has been

WILLIAM B. ALLEN,
Director of Sales Training,
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Division of The Kendall Company

Kendall Mills salesmen write their own expense drafts

"Our salesmen and management are happy with the ***Traveletter*** System of receiving expense money. It is convenient for them, is easily cashed, and is speedy. It also provides a good control over their expenses. The number of men in this division using it varies between 50 and 60 at a time. We have been using the ***Traveletter*** System since 1945.

"I thought you might like to know how high our regard is for your organization, and how pleased we are with your system."

The ***Traveletter*** System reduces cash advances, saves accounting time, prevents lost time and lost orders, builds morale of salesmen.

Used by companies employing from 1 to 1,000 travelers, including United Aircraft Corporation, American Cyanamid Co., Western Electric Co., and many others.

Traveletter
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adopted right up to the top, too. S. C. Moody, now personnel vice-president, was an operating man in organic chemicals; R. B. Fiske, head of public relations, was on the legal staff; W. G. Malcolm, top man in company-wide merchandising, was operating chief of Lederle Laboratories and has a Ph.D. in bacteriology.

II. Research as Operations

In the reorganizing process, Towe naturally had to attack the physical line-up of the company. He broke down some products—such as fine chemicals—into divisions of their own; melded others—like explosives and mining chemicals—into larger divisions. Today, Cyanamid's product lines either (1) form separate units geared to their markets, or (2) fit into the manufacturing process of a division.

Probably the most important decision—and one that Towe had to sell hard to his people—was the centralization of research. Before Towe, there was no topside clearinghouse for research programs. Each division felt a paternal claim on its own work.

The change hit hard, since as a company Cyanamid spends more than 5% of its sales on research—about $20-million a year—and in the chemical business it's hard to divorce research from operations.

Towe solved the problem in a somewhat unorthodox way. He established research as an operating division, with a central staff made up of a general manager and three assistants. At the division level, representatives of this central staff work with operations. Three laboratories—at Pearl River, N. Y., attached to Lederle's pharmaceutical business, and at Stamford, Conn., and Bound Brook, N. J.—divide up the work according to products and type of research.

Coordination—and another form of the cross-fertilization that Towe insists Cyanamid has to foster—comes from twice-a-year meetings of some 200 research group leaders, and an annual policy meeting of research directors from the various divisions.

III. The Age of Marketing

Most of what has happened in the past two years—the reorganization, the new emphasis on coordinated research, and the divorcement of operations and planning—has put Cyanamid into shape to reach its major corporate goal: getting closer to the consumer.

Cyanamid has tasted direct-consumer selling before. Its Lederle Laboratories Div., for instance, took antibiotics—such as its famed Aureomycin—and other pharmaceuticals to the top of the company's products heap (27% of gross income in 1955). Brand names and selling of packaged goods to customers became part of the business.

But chiefly Cyanamid has remained a supplier of raw materials or intermediate products.

• **Shift**—Now the emphasis of the whole company is changing. The old policy made sense at one time—you didn't compete with your customers. But today the chemical industry is so complicated and the horizons have so broadened that, as one executive put it, "you don't have to worry so much about customer reaction."

Towe himself insists on two things: (1) no growth for growth's sake—Cyanamid's first aim is to make money; (2) the company isn't necessarily set on being a consumer-product firm, but it won't avoid that avenue if good business reasons call for it.

The emphasis, though, is more on selling the consumer on the Cyanamid name and products than on manufacturing direct for the consumer.

• **Upgrading**—Towe and his people, for one thing, think there is a lot to be done on upgrading products—thus getting more of the final profit—without going all the way to the direct consumer market. For example, its phosphate rock operations in Florida will be elevated to produce higher grades for superphosphate fertilizers.

• **Push**—But the real push in the consumer direction will come when the Formica Co. joins the Cyanamid fold. This will give Cyanamid some do-it-yourself lines of laminated plastic end products, a marketing organization geared to the consumer, and a trade name Cyanamid can use on a host of new plastic and resin goods.

Formica has been a major customer for Melmac resin since Cyanamid first introduced the material to the Cincinnati fabricator. But Cyanamid until this year has avoided competing against a major buyer of its basic material.

Cyanamid's new direction will change that policy. In the Formica case, however, Cyanamid is solving the problem not by going into competition, but by acquisition.

• **Promotion**—You can see the shift in philosophy under Towe in other ways. The new trademark (cover) emphasizing the Cyanamid name supplants a hand grasping a stroke of electricity, which for years symbolized the company as a basic raw material producer.

Then there is Cyanamid's advertising campaign, aimed now at the ultimate consumer of products which Cyanamid materials help make—Melmac dinner ware, for instance.

• **Climax**—Topping all this change will be the introduction and marketing—if it comes—of Creslan synthetic

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JOY

SINCE 1851 . . . OVER 100 YEARS OF ENGINEERING LEADERSHIP

fiber. Cyanamid has been the major producer of acrylonitrile, the raw material out of which such new synthetic fibers as Orlon and Acrilan are made.

Such a venture has been in the cards for several years. But product improvement and development of better processing methods—to get the required investment down to profitable proportions—have delayed Cyanamid's entry into a market that is admittedly a revolutionary one for it.

The decision, besides costing a lot for new manufacturing facilities, will require a new merchandising organization.

It's to Towe's credit that right now, for the first time, Cyanamid has the basis for this move. Under Merchandising V.-P. Malcolm, Cyanamid has established a commerical development committee able to evaluate and pass on such major undertakings.

Today, you find executives at Cyanamid putting themselves this far out on the limb on the long-delayed Creslan: "In 1956, we'll either have to put up or shut up."

Du Pont Sets Up for Speed

Changing markets and technology prove the old model of organization wasn't good enough. So it seeks new flexibility.

Every day it gets clearer that when the modern pace of business is wedded closely with the modern pace of industrial research, markets and technology keep changing with unrelenting speed. And companies that want to keep up with the pace must organize themselves to roll with the punches that change almost invariably brings.

In the chemical industry, where research—and therefore change—gets top emphasis, this business axiom is especially true. And now du Pont, long held a model in organization structure, is reorganizing so it can meet rapid change. The reason: Two of its big, semi-autonomous departments—Textile Fibers and Polychemicals—have found their markets are changing. New competitors and new products are crowding in to change industries and markets that du Pont's research did much to create, and which its sales force has often pioneered.

• **No Elbow Room**—Du Pont is accustomed to operating at what's called the "technological frontier." It's often been described as a company that invents a new product, then develops the market in which to sell it. It got an early start in the chemical industry's young days, used its strong finances, solid engineering, and extensive research facilities to keep in front for several decades after World War I. But, since World War II, high-quality research and development have spread through the industry. So now the old technological frontier is beginning to look more like a crowded permanent settlement. The time is past when introduction of a new product guarantees a market. A new product's uniqueness—and its originator's position as sole supplier—are only memories.

Today, du Pont's engineering lead is dwindling fast—or has been eliminated—in fields like cellophane, nylon, acetates. It's finding that it must fight harder to open or enter new markets, and must move faster to maintain its old ones.

You can see what an effect all this was having on du Pont's Textile Fibers and Polychemicals departments when you look into what they have been doing through the past few years.

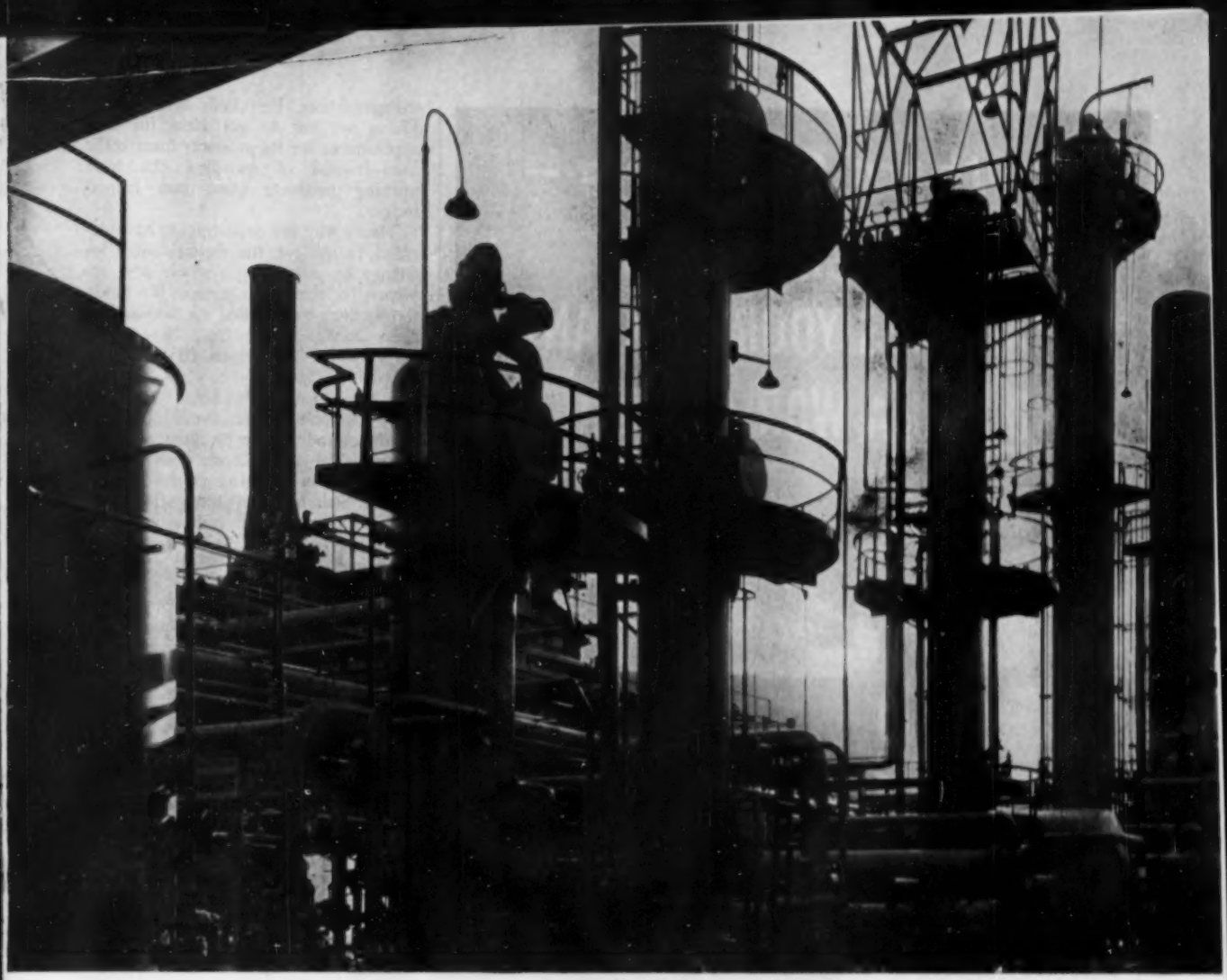
• **Struggling With Change**—In the eyes of a consumer-minded marketing man, the approach of both departments to product development and sales was "ivory-towered." Instead of starting from the final product or market, du Pont tended to start from what engineers in the laboratory and sales group thought the final market or product should be.

For example, when Orlon first came out, planners thought its principal market would be in awnings, tarpaulins, and other heavy fiber products. It proved to be in sweater and wool type products.

On occasion a lot of work or thought could go into the wrong product. Researchers in the polychemicals department would strip an automobile in search of parts for which nylon plastic could be used. If the market potential of a gear or fixture seemed promising, salesmen would be sent out to develop this market.

But sometimes it turned out that potential customers just didn't want the new products. And while du Pont's salesmen were discovering this, they failed to spend enough time talking to design engineers throughout industry—although these men were working on products in which plastics might be used. If the design engineers had had more product information from du Pont, and if they had been in closer contact with du Pont's sales engineers, they might have become sources for new applications for du Pont's products.

• **Fresh Sales Angle**—With this latest



A specially compounded polyvinyl chloride insulation helps minimize electrical cable failures at Shell Chemical Corporation, Ventura, Calif.

At Shell Chemical they use electrical cable that defies heat and corrosion

Shell Chemical Corporation uses a lot of electricity to power and control process equipment for making liquid ammonia—by reacting nitrogen from air with hydrogen from natural gas.

The heat and corrosion that go hand in glove with most continuous processes attack wire and cable insulations. Deterioration of insulation is a constant threat to circuit performance.

Rome Cable insulates certain types of cable with an extremely durable polyvinyl chloride thermoplastic compound which helps Shell Chemical, and others like them, guard against the staggering cost of process shutdowns due to electrical failures. Cable thus insulated is highly resistant to industrial hazards like heat (even flame), chemicals, corrosive fumes, moisture, oils and is permanently color coded.

Rome polyvinyl chloride insulated wires and cables are manufactured and sold under the trademark Rome Synthinol®.

Rome Cable's long experience with industrial wiring problems can prove useful to you, too.

Wire up today for tomorrow's industry

ROME CABLE
CORPORATION

Rome, New York • Torrance, California

Southern California —

ONE BUSINESS TRIP THAT DOES YOUR COMPANY AND YOU A WORLD OF GOOD

Certainly from a business standpoint there's no place more rewarding to visit than Southern California. Item: the Los Angeles market now ranks third in the U.S. in retail sales—and each month gains another 15,000 new citizens.

But beyond that, think what Southern California the *vacationland* could do for you right now.

Imagine exchanging snow and cold and the usual business routine for our sunny skies, our palms and orange groves. What a lift you'd get out of cheering the horses at a famous track . . . exploring Hollywood . . . strolling white beaches beside the blue Pacific . . . and melting your tensions away on our warm and balmy deserts!

Actually, a Southern California trip pays for itself *twice*—an investment in your company, an investment in yourself. And what better time than now, when you *most need* to relax and renew yourself? Like so many other businessmen, you're certain to be a new man on return: able to think better, work better, accomplish more.

Shouldn't you plan your trip now?

COLOR MAP. Official Sightseeing Map of Los Angeles County, all Southern California, 22½" x 25". Traces routes for tours, locates 645 sights visitors enjoy. *Free*—mail coupon.

All-Year Club of So. California, Div. H-2
629 South Hill Street, Los Angeles 14, Calif.
Please send me free Color Sightseeing Map.

*Name*_____

*Street*_____

*City*_____ *Zone*_____

*State*_____

PLEASE PRINT NAME AND ADDRESS

ALL-YEAR CLUB OF SOUTHERN CALIFORNIA. *This advertisement sponsored by the Los Angeles County Board of Supervisors for the citizens of Glendale, Hollywood, Inglewood, Long Beach, Los Angeles, Pasadena, Pomona, Santa Monica and 182 other communities.*

reorganization, Polychem and Textile Fibers are out to get ideas for new applications for its products from these men—instead of spending the time pushing products from two laboratories.

That's why the departments have decided to achieve the fluidity vital for change by promoting a whole new approach for their sales groups. To guide them, they have called on counsellors from McKinsey & Co., New York management consultants (BW–Sep.24 '55,p136).

Both departments have increased their marketing staffs. Both have split up their product line to allow salesmen to specialize more. Both have thrown new emphasis on "product end-use."

• **The Switches**—But, since the products and markets of Polychem and Textile Fibers differ, so do the mechanics of their changes.

In Polychem, for example, salesmen used to handle a wide variety of plastics. Now they specialize in fewer lines. They are backed up by product managers who concentrate on a single product line.

Here's how it works: Acting as a sort of general manager without line authority, the nylon product manager directs the strategy of the nylon sales effort, and coordinates it with new product development, end-use studies, plant capacity, costs, and finance. He and his staff keep du Pont management and the rest of the department posted on new nylon product opportunities.

Finally, a plastics end-use development group works on missionary sales programs and new products.

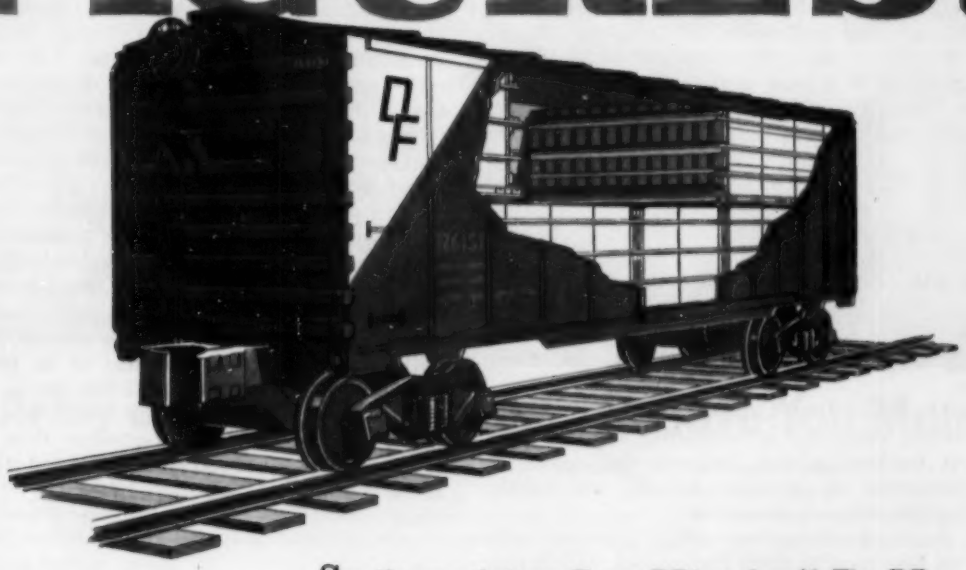
Textile Fibers has set up what it calls a merchandising division alongside sales and technical service groups. Merchandising handles product development, styling, promotion, and market research—all the steps from spinner and weaver to final consumer.

It, too, specializes in market development through study of end-use. Here, one man works on, say, men's slacks—made from all kinds of synthetic materials. He becomes an expert in manufacturing and styling, pushes his specialty throughout the textile industry. These merchandisers, in turn, work with a sales section that is broken down into product specialists in Orlon, Dacron, nylon, rayon, and acetate.

• **Set for Speed**—R. L. Hershey, head of Polychem, explains changes in his department as "evolution and adjustment" that will enable the department to move faster. And Textile Fibers' managers look on the changes in their department in the same light.

Now that du Pont has started reorganizing, it's not assuming it has a structure that can meet all changes in its industry. Says Hershey: "We can't say this set-up is the last word. It's a process of continuous change." **END**

How to make money in BOXCAR FIGURES!



Specify cars that are Evans DF* equipped! The DF increases revenue for the railroad. Shippers can get DF at no extra cost! DF equipped cars virtually eliminate damage to lading in transit. Costly dunnage becomes a thing of the past, too. In DF cars, there is no danger of slack . . . no damaging load shift. And with DF you can double-deck, get heavier loads.

Today, heavier loads per DF car are increasing revenue per car mile for forty-four Class I railroads.

Railroad or shipper, the sooner you investigate Evans DF equipped cars, the sooner you will start making money in **"boxcar figures."**

*DF is a trademark of the Evans Products Company...only Evans makes it.

EVANS DF LOADER ... LOCKS IN LADING, ELIMINATES DAMAGE AND DUNNAGE

FREE BOOKLET! There's much more to the DF story of interest to both railroads and shippers. Write today for your copy of this interesting brochure, to Evans Products Co., Dept. B-2, Plymouth, Mich.

In Management

• • •

IBM to Invest $20-Million In Expansion on West Coast

Sparked by the aircraft industry, the Pacific Coast is becoming a major market for computers, both for technical and for business use. By mid-1957, International Business Machines Corp. expects to sink about $20-million in West Coast office buildings, factories, and service centers.

Plans call for a new office building in Santa Monica, a factory in San Jose, a 13-story office and data-processing center in Los Angeles equipped with giant 701 and 705 computers, and new data-processing centers in Portland and Seattle equipped with model 650 computers.

Pursuant to the recent antitrust consent decree (BW—Feb.4'56,p26), **IBM is now putting price tags on its computers.** The 701s and 705s are priced at $1-million to $2-million, and the 650s are in the $3,500 to $11,000 price ranges.

• • •

Businessmen Offer Idea To Ease the Teacher Shortage

The shortage of teachers—especially in the sciences—is starting to get reactions from business and from educators.

Arthur D. Little, Inc., Cambridge (Mass.) research and consulting company, is instituting a program to help boost teachers' salaries, improve the caliber of science instruction in secondary schools, and qualify teachers for summer work in industry.

It will do this by hiring two college graduates with B.S. degrees who want to teach high school. While one teaches for a semester, the other works for Little at a regular industrial salary. For the next semester, the two switch jobs.

Starting salary in Massachusetts with a B.S. for male high school teachers is $3,300 a year. **Teaching one semester and working at Little the rest of the year, the two trainees will pull down around $4,300 each.** At the end of three years, when Little releases them for full-time teaching they will rate about $4,000 a year in teaching salaries and will be able to make another $1,000 a year by summer work at Little or elsewhere in industry.

RCA's chairman, Gen. David Sarnoff, proposes that the problem be attacked nationally by establishing a "National Educational Reserve" composed of qualified teachers in math, physics, chemistry, and other sciences. This reserve would be drawn from the technological ranks of industry.

Sarnoff wants companies to release—at full pay for one year—a number of qualified men and women who will teach in local schools. Qualified persons who have reached retirement age could also be used quite effectively, he says.

The University of California at Berkeley uses special Regents' professorships or lectureships to round out its teaching staff. These are filled by prominent men in business, the arts, sciences, or professions. Regents' professors serve for at least a semester, Regents' lecturers for at least a month.

• • •

Salvaging the Alcoholics— It Really Works in Boston

The majority of alcoholics in industry do not become acute cases and, since they are often key people (BW—Mar.13'54,p103), Boston companies have found that it pays to put time and effort into trying to salvage them, keep them on the job. At the seventh annual conference of the Boston Committee on Alcoholism, speakers representing several local companies described their efforts in the field.

General Electric Co.'s Lynn (Mass.) plant, for example, has set up an in-plant program for the problem drinkers among its 13,000 employees. GE started things off by sending personnel people and foremen to Boston University's special evening courses on alcoholism. Then it urged foremen not to cover up for any chronically hung-over workers but to give them some positive help by referring them to the company's alcoholism program.

GE's problem drinkers are sent to the Boston Committee on Alcoholism clinic, where psychiatrists, psychologists, family advisers, and vocational counselors are available. Each Tuesday evening, the committee holds private consulations with problem drinkers and conducts group therapy. **Of 13 employees referred to the committee in the first nine months of its program, GE reports complete recovery for all but one.**

Monsanto Chemical Co., which also has a local plant, began working with the committee three years ago. It reports a record of 100% recovery for workers referred to the committee's program.

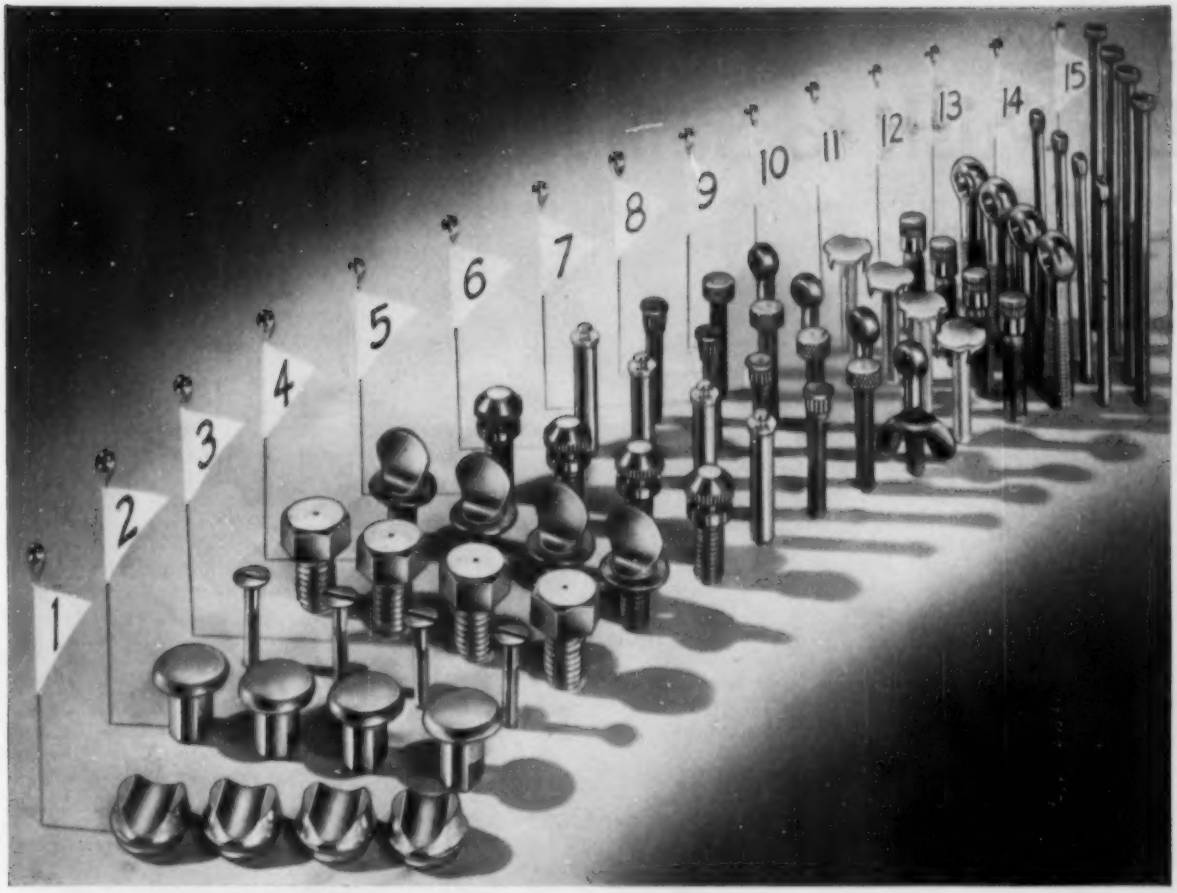
• • •

Management Briefs

Proposed purchase of about 14 other companies, followed by merger, would turn Ryder Rental Systems, Inc., of Miami (gross billings about $28.5-million) and Consolidated Freightways, Inc., of Portland, Ore. (1955 billings about $40-million) into a nationwide trucking line. The two companies are only discussing the move now but have filed applications with ICC.

The cost of last year's battle between insurgent stockholders and incumbent management at Minneapolis-Moline Co. of Minneapolis (BW—Sep.24'55,p126) came to $19,000 for management and $22,262 for the victorious rebels. Last week, shareholders agreed to foot the insurgents' bills.

Toledo financier Edward Lamb (BW—Nov.20'54,p28), still on the acquisition trail, has picked up options for effective voting control of F. L. Jacobs Co., Detroit automotive parts, vending machine, and electronics producer. Jacobs has substantial tax-loss credits.



This Army of Specials Marches to Save You Money

Here are a few of the many specials produced by Harper to save industry money—to do a better job.

Many used to be milled from bar but Harper engineers and metallurgists developed methods of cold-forming them with these results:

- Important savings in cost
- Faster production
- No metal wasted
- Usually a cleaner, stronger, better finished product

If you are using parts like these of any metal other than plain steel in quantity, it will pay you to check with Harper no matter how you are producing them.

Remember also that Harper is the largest manufacturer specializing in standard bolts, nuts, screws, washers and rivets of all non-ferrous metals and stainless steel. Stocks available in every market area for immediate delivery. Check the Harper branch or distributor near you.

THE H. M. HARPER COMPANY
8225 Lehigh Avenue, Morton Grove, Ill.

Specialists in all corrosion-resistant fastenings

Bolts • Nuts • Screws • Rivets • Washers
of
Brass • Bronze • Monel • Aluminum • Stainless

1. Copper Contact
2. Copper Lead
3. Brass Hi-torque Brake Band Bolt
4. Aluminum Hex Head Air Pressure Bolt
5. Silicon Bronze Transformer Adjusting Screw
6. Silicon Bronze Terminal
7. Stainless Steel Groove Pin
8. Silicon Bronze Molded Plastic Insert
9. Stainless Steel Focusing Screw
10. Stainless Steel Hinge Pin
11. Brass Hold-down Screw
12. Brass Terminal Block Screw
13. Monel Eye Bolt
14. Copper Conductor Pin
15. Stainless Steel Hex Head Stem Bolt

OVER 7000 ITEMS IN STOCK... HARPER DISTRIBUTORS EVERYWHERE

HARPER
EVERLASTING FASTENINGS

Big Push to Sell Electric Living

● The electric industry opens a campaign to increase use of electricity in the home—and give the industry a bigger share of consumer disposable income.

● First target of nationwide drive is the trade; then promotional efforts will be turned on consumers.

● Campaigners are giving special attention to overcoming problems posed by wiring, financing.

The consumer's dollar is in for a new onslaught this week. This time it's the electrical industry that is staging the attack. It let loose from New York a nationwide campaign that hopes to include everyone from manufacturers of power generating equipment down through appliances manufacturers, distributors, dealers; electrical contractors; builders and architects; financing institutions; as well as the utilities.

Some 70 utilities across the country helped usher in the Live Better Electrically drive. Over a closed-cirucit TV broadcast, an estimated 40,000 guests of the utilities witnessed the initial presentation of the program.

• **Double Push**—First target is the trade. For them, the campaigners have prepared a movie to show distributors, dealers, and the like. A booklet, How to Help Home Owners, is available to the shelter trades. Trade advertising in publication starts this month. Promotion kits, slogans, display material are already on tap.

Come April, the consumer will get the treatment. There's a short movie to be shown in commercial theaters. A second booklet will tell how the consumer can "live better electrically." An hour-long TV show for consumers has been prepared, plus advertising.

• **Utility Participation**—The utilities are running the promotion at the local level. But it is an open secret that General Electric Co. initiated the project and has carried the main financial burden so far. This has proved something of an embarrassment to the company. Live Better Electrically was conceived as an all-industry program—and some utilities balked or said they would balk at the idea of tieing in with anything that smacks of a one-company show. However, GE is leaning over backwards to stay out of the picture. Its name appears nowhere in any of the promotion material. As a result, BUSINESS WEEK found in a quick check that most of the utilities seem to be embracing the program with open arms.

It's also hoped that most of the big manufacturers will come in on the program. Last week Westinghouse Electric Corp. said it was getting on the bandwagon "enthusiastically." Most of the others checked said they had not yet been asked, or were still considering. One—as yet uninvited—indicated it would have a flat no.

I. The Goal

A high official of GE explains the thinking of Live Better Electrically quite simply: The industry is out to increase its share of the consumer's disposable dollars. Population and employment are on the upswing. Housing is holding up. The industry wants to be in on the gravy. "We don't see why cars should run away with all of the money," he explains.

• **Rising Consumption**—The industry is leading from strength in this drive. Anyway you look at the figures, electrical consumption is rising. This is particularly true of the residential market. According to Edison Electric Institute, the nation's total residential electricity bill for 1955 came to roughly $3.2-billion, as against $2.2 billion in 1951. Total home consumption added up to 119-billion kwh. last year, against 77-billion kwh. in 1951.

On a per customer basis, consumption has risen by about 200 kwh. a year in the past few years; average consumption per customer in 1955 is estimated at 2,738 kwh.

So, in the natural course of things, home consumption would reach an average of some 5,000 to 6,000 kwh. in 10 years. Live Better Electrically hopes to improve on nature. Given a nationwide program, in which all aspects of the industry participate, there's no reason why annual home consumption can't reach 10,000 kwh. in 10 years. The day may well come, the exponents of the program say, when the electrical equipment in a house will represent 25% of the total worth of the house.

• **Why the Drive**—With natural economic growth already doing nicely by the industry, why does it feel the need of special promotion?

For all the growth of the past years, the number of new electricity customers is leveling off somewhat. The great bulk of old homes—probably 98%—are already wired. That means that new customers must come from new housing.

• **Wiring Problem**—More important, the tremendous onrush of new appliances since the war has in many cases hit a ceiling. That ceiling is fixed by the ability of present home wiring systems to handle the electricity load. The sale of more appliances in many cases depends on the extent to which home wiring is made adequate for higher loads (BW—Oct.3'53,p103).

Another roadblock to more sales is financing. "We want to make it as easy to buy appliances as it is to buy a car," the exponents of the new campaign put it. That's why savings and loan institutions and banks will be assiduously cultivated, to help ease the financial load of paying for the appliances and new wiring.

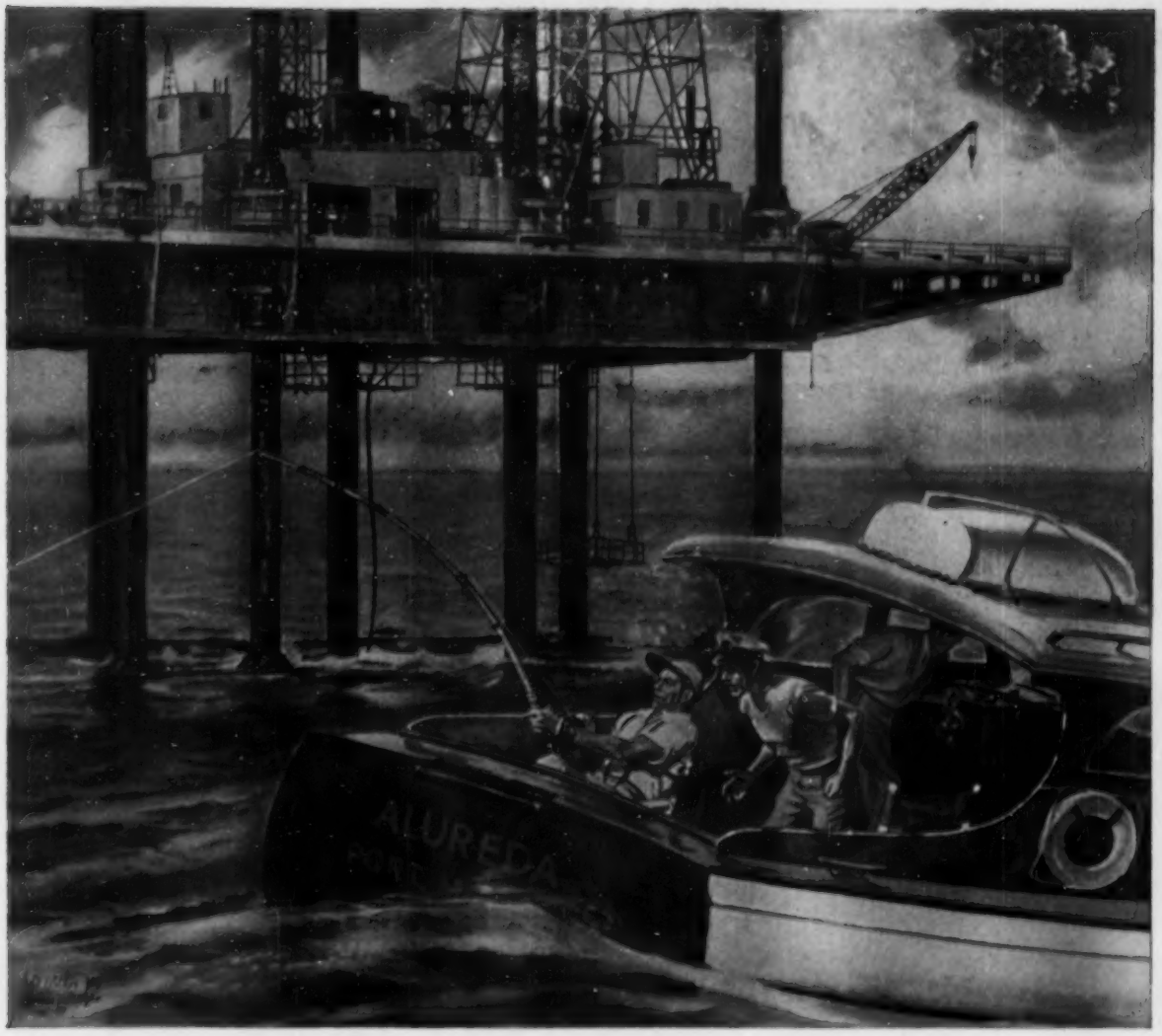
• **Retail Selling**—Another objective is to step up the selling job at the retail level. This means getting at not only the dealers but the builders and architects to make sure that from the start new housing is adequately equipped. It means the development of more specialists among the contractors and electrical appliance outlets. To a considerable extent, it means selling the all-electric kitchen and making the owner feel as proud of it as the new car outside his door. "We want to get the kitchen out on the curb," the GE official says. For the industry feels that it has been hamstrung by the workhorse nature of its products.

II. Industry Reaction

Live Better Electrically is only the latest of a long string of efforts to sell the U. S. consumer on more electricity. A week or so ago, Edison Electric Institute, whose membership is made up of the utility companies, announced its own national drive, called Operation House Power (BW—Jan.21 '56,p150). Many utilities have had similar drives.

The utilities, therefore, are already pretty much alert to the advantages of an all-out campaign.

Cleveland Electric Illuminating Co.



MEN WHO "FISH" FOR OIL

NEED THE STRONGEST LINES—OF STEEL

Off-shore drilling operators, in seagoing rigs, go "deep sea fishing" for oil as far as 75 miles off shore, in water depths to 100 feet, probing the bed of the sea to depths of several miles.

Their "line" is a combination of wire rope, drill pipe, casing and tubing . . . a line that must withstand terrific pressures, turning stresses, vibration, corrosion and changes of temperature.

J&L supplies the vital lines they need — high-strength J&L Seamless Steel Drill Pipe, Casing and Tubing, and J&L Wire Rope.

Oil well drillers rely on rugged Jones & Laughlin Wire Rope, and on high quality, high-strength J&L Tubular Steel Products . . . for drilling operations on land or at sea.

Jones & Laughlin
STEEL CORPORATION — *Pittsburgh*

J&L STEEL

Hot and Cold Rolled Sheet and Strip • Tin Plate • Tubular Products • Plates, Structurals, Hot Rolled Bars • Hot Extruded and Cold Drawn Bars • Wire and Wire Products • Alloy Products • Electricweld Tubing • Wire Rope • Steel Containers • Coal Chemicals

Look to J&L . . . for the steels that work for modern industry

has held meetings with architects to line them up for the drive. Southern California Edison will hold training sessions for dealers, and will furnish personnel in model homes to demonstrate the advantages of electrical living. Pacific Gas & Electric Co. has scheduled rebroadcasts of this week's programs. Duquesne Light Co. says it will work on the banks.

• **A Few Exceptions**—Only one or two of the utilities BUSINESS WEEK talked to aren't participating—either because they shied off from a program initiated by a single manufacturer or because they felt they were already tied up with Edison Electric's campaign.

The reasons for widespread utility interest in the new drive highlighted in great detail those put forth by Live Better Electrically spokesmen. To a man, the utilities agree that rewiring in old houses and adequate wiring in new houses is a crucial problem. Con Ed of New York made two surveys of its market in 1954, learned this:

Among over 8,000 one- and two-family houses studied, 78% were inadequately wired for their present load. Furthermore, 42% of the customers had their eye on new appliances they wanted to purchase—and 88% of these lacked the wiring to take the new equipment.

On apartments, the score was similar. Con Ed surveyed 1,081 apartments, again found that over three-fourths of them hadn't the wiring they needed for their present load. Only 7% of these had the wiring for new purchases.

• **Barrier to Sales**—There is some evidence that inadequate wiring is beginning to hurt appliance sales. According to Con Ed, about a fourth of the room air conditioners bought in the summer of 1954 had to be turned back because owners couldn't operate them.

For several reasons, the utilities feel a particular obligation to take over some of the selling job nowadays. The builder in many cases is still reluctant to put in the wiring that present-day requirements call for because it adds to the price he puts on his house. Appliance dealers shy off from bringing up the subject of wiring. A customer who is wavering over a big-ticket appliance may waver clear off the deal if he finds it may entail a further outlay.

• **Consumer Wising Up**—The consumer is beginning to get wise to the situation. Partly as a result of the selling job the utilities have done, he is more and more apt to ask a dealer about wiring when he buys an appliance.

On the financing, too, the industry is becoming alert to the need for action. A Greensboro (N. C.) electrical contractor, for example, reports that it is getting more common for the wiring and the appliance to be financed in one account. END

CAMPAIGN CONTRIBUTION

We can contribute, plenty, to your campaign for safe shipping of your product. We can contribute through our 48-year specialized experience in corrugated container making, our laboratory controlled manufacture in four modern plants, our special knowledge of shipping problems, our ability to produce containers that cut damage claims, complaints and over-all shipping costs. We can boost your safe shipping campaign. Call on us.

Fort Wayne
CORRUGATED PAPER COMPANY
GENERAL OFFICES • FORT WAYNE 1, INDIANA
Corrugated Fibre Boxes • Corrugated Paper Products

The Arkansas Industrial Development Commission, State Capitol, Little Rock

THIS IS ARKANSAS

YOU CAN SAVE
UP TO 50% ON
SMALL PARTS LIKE THESE

by using
TRADEMARK
BEAD CHAIN
Multi-Swage
PRODUCTS

Every year Bead Chain produces *billions* of tubular metal parts for electronic and mechanical applications. Multi-Swage eliminates costly turning, drilling, stamping and forming—automatically swages from flat stock into strong precision forms with positive, tight seams. If you're a volume user of such parts, in any metal, up to ¼" diam. x 1½" long, find out how much Multi-Swage can save *you*. Send sketch or standard parts for prompt estimate. Write for catalog *today*.

THE BEAD CHAIN MANUFACTURING CO.
203 Mountain Grove St., Bridgeport, Conn.

Whether You Need
ELECTRONIC BRAINS
or ELECTRONIC BRAWN

has the answer for You!

Faced with the problem of improving your product *electronically*—without the trained personnel or facilities you need? Your answer—clearly—is INLAND ELECTRONICS.

I-E is a complete production organization, fully equipped to meet all of your electronic engineering, production and testing requirements.

I-E engineers are ready *now* to design and/or manufacture the electronic components your product needs...automatic inspection equipment, machine and equipment controls, electro-mechanical assemblies, to name but a few.

For design production and testing service, consult your best source today ...I-E, that is!

I-E PRODUCT DEVELOPMENT GUIDE—write for your copy now!

Product Design, Engineering and Contract Manufacturing.

INLAND
ELECTRONICS
CORPORATION
801 RATHBONE AVENUE
AURORA, ILLINOIS

ADVERTISING EXECUTIVE Marsteller reports results of survey, designed to show . . .

How Advertiser Can Size Up a Magazine's Quality

A common complaint in the magazine business is that advertisers pay scant attention to a magazine's editorial quality. By and large, they say, magazines pick up advertising because of their circulation figures or the skill of their space salesmen.

This week an advertising agency offered a way to bring editorial quality into the formula of advertising space buying and selling in trade papers. At a special meeting of the Associated Business Publications, Pres. William Marsteller of Marsteller, Rickard, Gebhardt & Reed, of New York and Chicago, unveiled the results of a year-long survey his agency made to find out how to judge magazine editorial effectiveness.

• **Check List**—The study produced an audit or check list of editorial policies and practices that Marsteller believes will serve as a fairly accurate yardstick for measuring editorial stature.

The audit consists of 13 questions. Some of these call for subjective judgment: "Is there evidence that the publication is providing leadership in its industry or profession?" and "Is there a clearly defined editorial policy, and does an examination of six consecutive issues indicate that the publication generally fulfills this policy?"

But others ask for information that is easier to come up with—and to check: "Does the publication employ a consistent method of checking editorial readership?" and "Does the publication charge for editorial cuts?"

Still other questions are concerned with whether a magazine clearly states the audience it is aiming at, whether editorial content is adequately illustrated, whether editors go out into the field, and whether the publication date is fixed and consistently followed.

• **Application**—A space buyer swamped with magazines serving the same industry, says Marsteller, can use the audit to do two things. He can use it to weed out dubious fringe publications whose circulation figures don't tell a complete story. And he can use it as an additional yardstick when he has to choose between magazines equal in other respects.

Marsteller feels strongly that editorial effectiveness should enter into the space buyer's decision, since it is part of advertising effectiveness. Only by taking it into account can a space buyer tell how well a magazine serves its readers. It is even a guide to whether a magazine is actually read.

• **Criticism**—The survey has run against some criticism, Marsteller admits. He himself grants that some of the audit questions are weak and that they should not all be given the same weight. A few publishers flatly deny there is any way to measure editorial quality. Marsteller describes their attitude this way: "My

PLASTICS IN ACTION

Thousands of feet down under the nodding pump units, valve cups expand and release with every stroke to bring up the treasures of petroleum.

Continuous pumping is desirable, but when cups become worn, flow declines to a point where wells must be taken out of production and the cups replaced.

Then intensive research developed a blend of Hycar* nitrile rubber and two Durez phenolic resins. This was the answer . . . the resins' high resistance to abrasion and corrosion enables pumps to swig up crude, *non-stop*, for as much as three months longer. More barrels per cup!

In *your* business, are profits tied to a material or a process that could be made better with the Durez phenolics? As modifiers, coatings, or binders, these resins link properties in remarkable combinations—strength, insulating value, resistance to high and low temperatures, humidity, abrasion, most acids, and mild alkalies.

At your command are the integrated research, production, and service facilities of the Hooker organization—50 years in chemicals and 35 in plastics. Just write.

DUREZ®

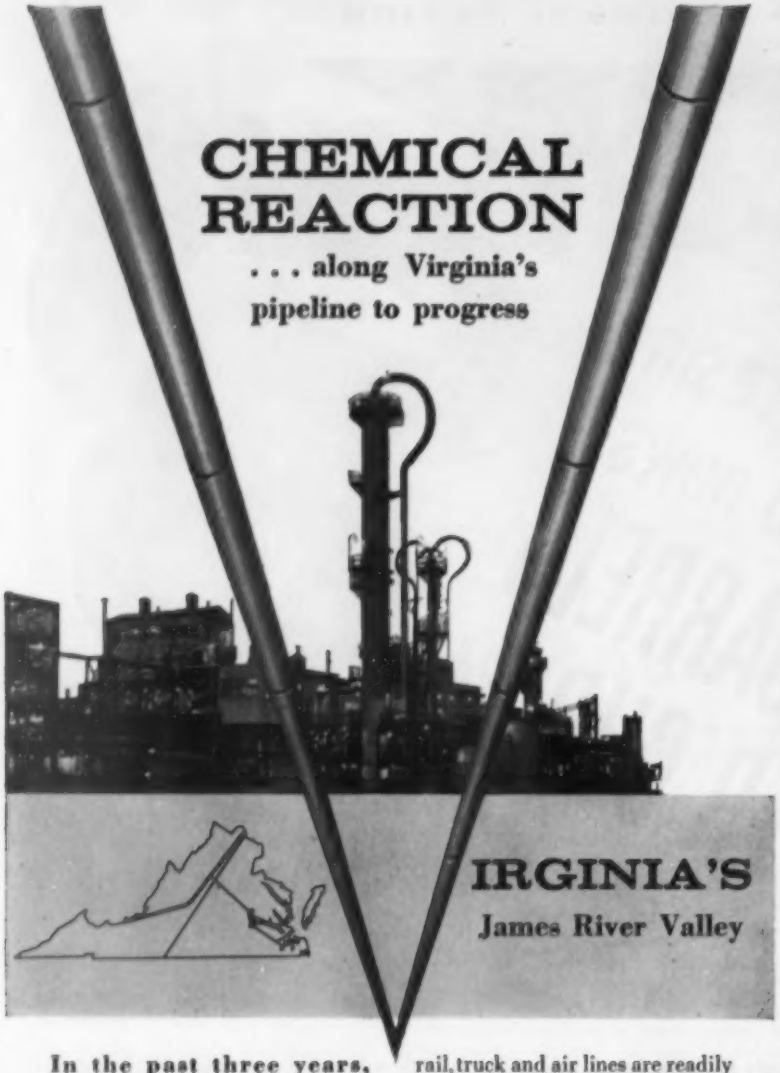
Phenolic Plastics that fit the job

DUREZ PLASTICS DIVISION

HOOKER ELECTROCHEMICAL COMPANY
4002 WALCK ROAD, NORTH TONAWANDA, N. Y.

HOOKER® CHEMICALS & PLASTICS

**Hycar trademarked by B. F. Goodrich Chemical Co. Hycar-Durez cups made by Dragon Mfg. Co.*



In the past three years, $64,000,000 has been poured into the expanding chemical industry in Virginia. And the major part of that chemical expansion has taken place along Virginia's Commonwealth Natural Gas pipeline serving the James River Valley.

Ample low-cost natural gas is only one of many profit advantages your chemical plant will find here. Abundant other forms of power, if needed, and raw materials are on tap, too.

Natural center of the East—You're close to the big eastern markets, with favorable rates to the South and Mid-West. Major rail, truck and air lines are readily available to your plant. The Ports of Hampton Roads bring world markets and raw materials within easy reach. And the James channel provides deepwater frontage up to 90 miles inland.

Vast water resources—The James River assures unlimited water for manufacturing. Underground water, likewise, is abundant and waste disposal presents no problem.

For complete facts on manpower availability, climate, favorable taxes, sound government and choice plant sites in Virginia . . . write today.

INDUSTRIAL DEVELOPMENT DEPARTMENT

Commonwealth Natural Gas Corp.

116 South Third Street • Richmond, Virginia

magazine is well edited, but there is no way to measure editorial quality."

Other observers admit that the idea behind Marsteller's audit is valuable, but they quarrel with specific aspects of the survey. Some say the standards the agency used for judging editorial quality are too subjective or don't really reflect anything important.

But Marsteller and his associates, a little startled at the attention their survey has received, make modest claims for it. They insist that their approach, when properly handled, makes it possible for an advertiser to look at editorial content on at least as objective a basis as circulation.

• **Advice to Advertisers**—In urging advertisers to delve into a magazine's editorial contents before choosing among several magazines, Marsteller points out he is not suggesting that they substitute editorial evaluation for circulation audits. He thinks they ought to use both criteria together.

The agency president also advises space buyers never to pay for anything running in the editorial columns of a magazine. He doesn't think publishers ought to charge for editorial space. But, Marsteller reports that a surprising number of magazines, in effect, do sell part of their editorial pages by charging for engravings. This happens most commonly in "New Products" sections. He has collected a sheaf of letters from publishers asking for such payment or openly quoting editorial space rates. In one case, the agency figured it would be cheaper to buy an ad than pay for space in the "New Products" section.

• **Poke at Publishers**—Marsteller had a few words of advice for publishers, too. He told them to keep their mastheads honest. His agency found cases where magazines beef up their mastheads by listing as "editors" secretaries, salesmen, and the like, as well as never-consulted consultants and non-existent branch offices.

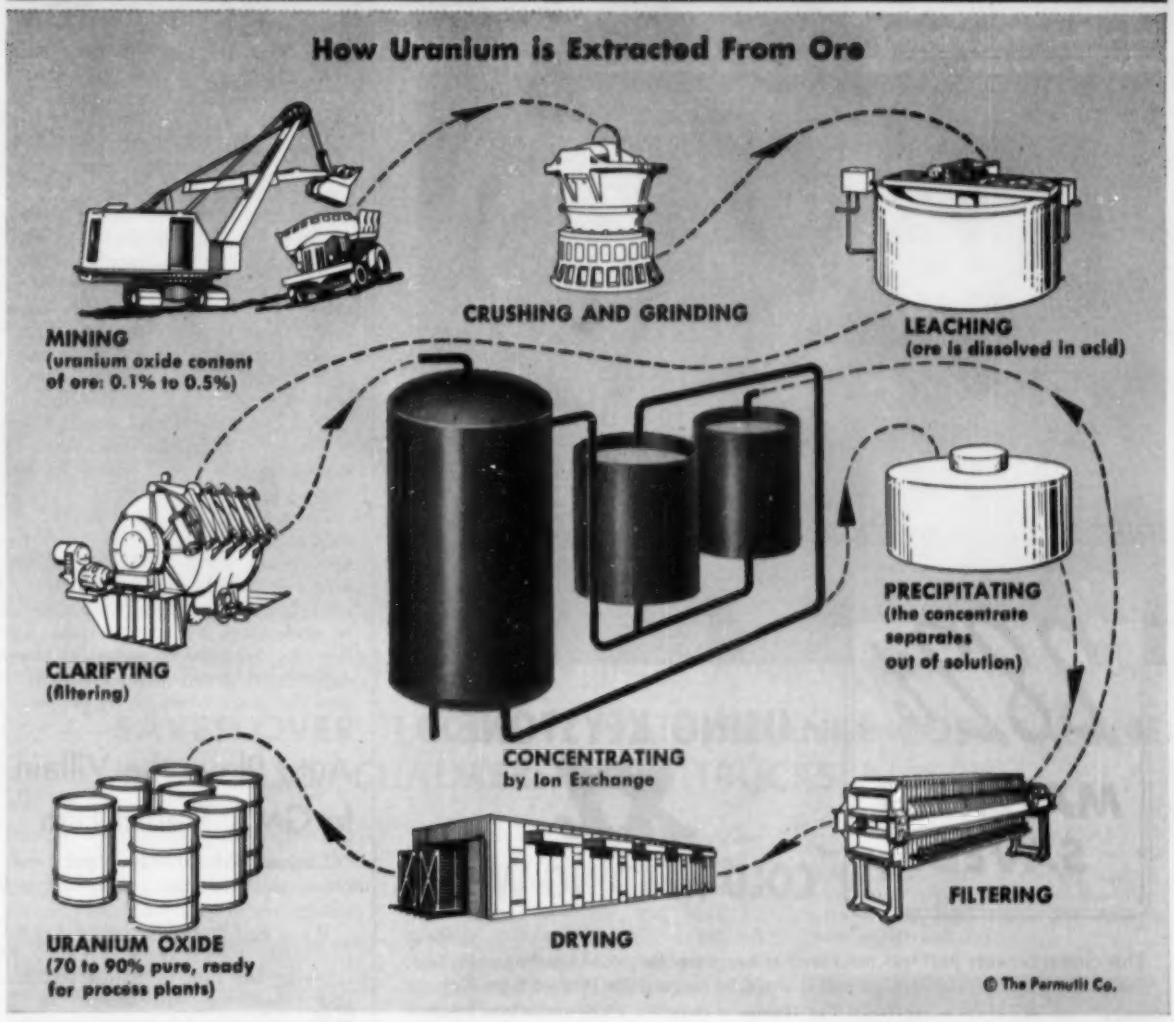
And the agency head advised publishers to reserve the right to rewrite and edit contributions, conduct reader research, and use advertising and sales promotion to sell editorial leadership.

• **How It Began**—The Marsteller agency was more or less pushed into its study on editorial effectiveness. About a year ago, after one of its space buyers favored one magazine over another, the losing publisher griped that his magazine was better edited than the rival publication even though it had smaller circulation. The Marstellar agency was struck by the fact that it had no objective way to answer this complaint. So it spent some time and money to find an answer.

It took three months alone for the agency to draft a comprehensive questionnaire for auditing a magazine's editorial standards. A sample questionnaire

(Advertisement)

PROCESSES: Ion exchange "swaps" chemicals in solution at high speed . . . purifies, recovers, concentrates, separates. An example:



Ion Exchange Cuts Uranium Costs

One reason uranium is costly is because it's spread so thin. Even a ton of good ore contains only 10 lb. of uranium oxide. And when that ton of ore is dissolved, its 10 lb. of uranium is hidden in 5 *tons* of leach solution!

• **Solutions that dilute** would be almost too expensive to handle if it weren't for the ability of ion exchange to pick out "the needle in the haystack." Take the above example . . . ion exchange-precipitation takes the 10 lb. of uranium out of the 10,000 lb. of leach solution in one simple step . . . then delivers it in as little as 12 lb. of concentrate! It also discards other elements that generally stick close to uranium . . . eliminating special up-grading steps. The results: *more* uranium per ton of ore and at a lower cost than by former methods . . . and *higher grade* uranium that cuts subsequent refining costs.

• **That's why Permutit** ion exchange is at work at African, Canadian and U. S. uranium mines.

• **This compact process** also concentrates metals from industrial wastes. For example, it recovers valuable chromium from exhausted plating baths and rinse waters and, at the same time, eliminates a tough and costly waste disposal problem. It recovers copper and zinc from rayon wastes. It also removes unwanted minerals and other impurities from process and boiler feed water, chemicals, sugar solutions and hundreds of other products.

• **We'll be glad** to look into ways it might apply to your process. Write to The Permutit Company, Dept. BW-2, 330 W. 42nd St., New York 36, N. Y.

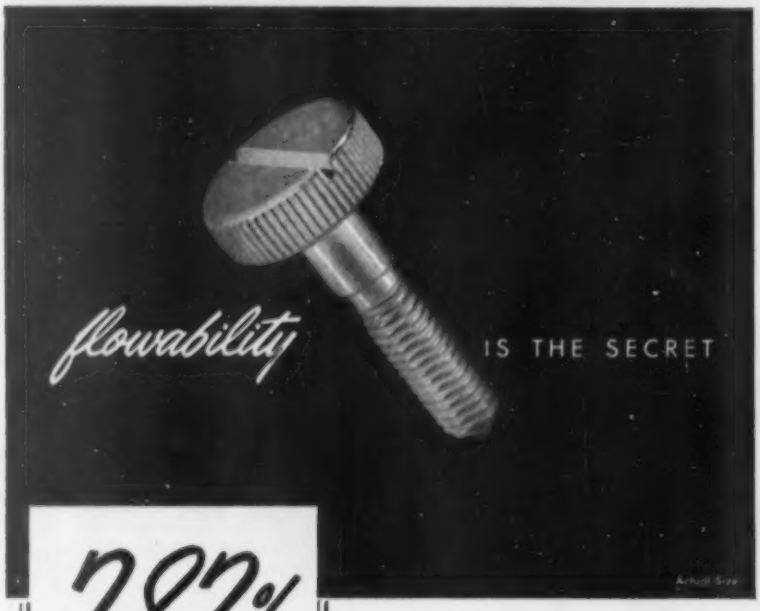
PERMUTIT®

rhymes with "compute it"

ION EXCHANGE

for Water Conditioning • Chemical Processing

KEYSTONE XL COLD HEADING WIRE



282% MATERIAL SAVED...

USING KEYSTONE XL COLD HEADING WIRE

This circuit breaker part was machined at one time. But, cold-heading experts analyzed its design and decided that it could be successfully formed from Keystone "XL" Cold Heading Wire. The result—a material waste reduction from 75% to 7%—and a saving of 282% in steel, plus faster, lower cost production and a finished product that is stronger and free from defects.

Keystone "XL" Cold Heading Wire is not just ordinary cold heading wire. It is wire made to your specific order to exactly solve your difficult cold heading problems. Special drawing, annealing and coating "secrets" produce a wire of exceptional *flowability*. Originally developed for recessed head screws, Keystone "XL" Wire is now widely used to solve many of the toughest cold heading problems at great savings in time and money.

SEND FOR FREE "COLD HEADING" BOOKLET

Get your copy of a new, valuable reference book containing many technical and informative facts about the modern cold heading process. Remember, too, that Keystone specializes in all types of wire for all types of industrial needs. Write us about your need!

KEYSTONE STEEL & WIRE COMPANY, PEORIA 7, ILLINOIS

KEYSTONE WIRE for Industry

was sent to publishers, not to be filled out as some thought, but to get some opinion on the validity of the questions. In the end, the agency dropped this plan. But a good many other people picked up the idea. And Marsteller reports that publishers have complained about receiving numerous lengthy questionnaires, based on his own, from manufacturers and agencies. "If our editors had to fill out all these," one said, "they wouldn't have any time left for editing."

• **Editorial Analyses**—Along with developing the editorial audit, which the space buyer can use himself, the survey also consisted of various studies of magazine editorial content. The agency staff analyzed 101 different publications in 19 industrial fields. The studies involved analyses of how the same important news stories, such as the Guaranteed Annual Wage, were handled by various magazines; headlines and first paragraphs; news release handling; editors per editorial page

By making such studies, the Marsteller agency feels, an advertising agency can get a good idea of how a magazine stacks up editorially. Of course, studies of this type could not be undertaken by a single space buyer. But an advertising agency's research department could conduct them and give the information to its people.

Auto Plays the Villain In GM's Transit Film

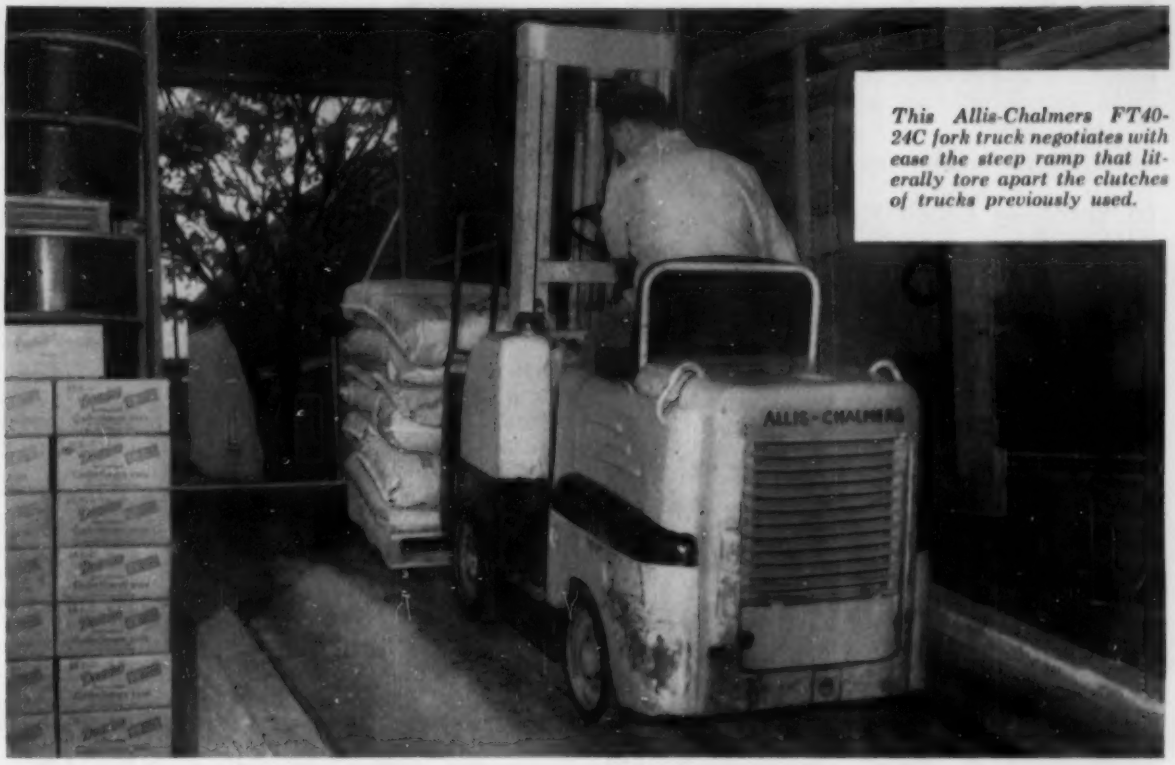
General Motors has put out a movie in which the automobile is the villain.

It's a half-hour film called Let's Go to Town. GM's Truck & Coach Div. is giving the film to transit companies and downtown associations to help make life easier for transit vehicles by clearing some cars off crowded downtown streets.

The film points out that one way to clear city streets, of course, is to ban curb parking. But that means more parking lots and garages—and these invite more auto owners to the area. The streets, the film narrator argues, are as crowded as before.

The real solution, according to the film, is for most people to leave their cars at home and ride in transit vehicles. Only 3% of the vehicles now on the streets are transit vehicles, but they carry 50% of the passengers, it estimates.

Traffic-harried city officials seem to have welcomed the film, which has been on the road since last fall. Thus, when it turned up in Memphis, Tenn., recently, the Transit Study Committee appointed by Mayor Edmund Orgill grabbed the chance to show it. END



This Allis-Chalmers FT40-24C fork truck negotiates with ease the steep ramp that literally tore apart the clutches of trucks previously used.

Buffalo Warehouse Moves 50 Million Pounds of Sugar a Year . . .

SAVES OVER $1,000 ON MAINTENANCE COSTS ALONE WITH ALLIS-CHALMERS FORK TRUCKS

Inland Warehouses, Inc., Buffalo, N.Y., handle principally sugar and syrups, with sugar volume alone running 50 million pounds a year.

Warehousing operations here are typical, except the loading dock is more than two feet higher than the floors, requiring a steep ramp. With fork truck equipment previously used, this ramp was a real clutch wrecker. In order to climb the incline under load, it was necessary to set the governor up for higher engine speed and then slip the clutch. In the words of Vincent C. Bonerb, president of Inland. "We had begun to accept chronic clutch troubles as part of our cost of doing business. Repair costs of $1,100 a year were considered normal, and of course there was considerable downtime. Gas consumption was high, too."

VINCENT C. BONERB
President, Inland Warehouses, Inc.

Then Inland assigned an Allis-Chalmers 4,000-lb fork truck with torque converter drive to the loading dock area. During the first 15 months, averaging 6,875 trips up that ramp every week, this rugged machine needed repairs and parts amounting to only $1.92. Gas consumption was cut 10 gallons a week.

This is the kind of performance built into all Allis-Chalmers fork trucks. Their heavy-duty industrial type engines are designed to stand up in demanding service. The torque converter drive eliminates clutch problems and provides torque to handle steep grades with ease.

Find out how an Allis-Chalmers fork truck can cut costs on your operation. Write for free 36-page booklet and the name of your nearest dealer.

ALLIS-CHALMERS, BUDA DIVISION
MILWAUKEE 1, WISCONSIN

Tiering, loading or carrying — the rugged power, ease of driving and reduced aisle requirements of Allis-Chalmers trucks have made the driver's work easier and safer.

ALLIS-CHALMERS

BH3

In Marketing

• • •

Store Chain Adds Flexibility To Revolving Credit Plan

Other retailers may worry about credit selling, but Federated Department Stores, the country's second largest chain, seems to have few qualms. Last week Ralph Lazarus, executive vice-president, told how Fedcrated's version of revolving credit works.

The customer, with the store's credit department, decides what the ordinary limits of his credit should be. Say it's $100. His monthly bill will usually run to $10—as long as the total credit outstanding stays under $100.

Then suppose he buys something that puts him above the $100 limit, $150, say. Federated divides the $50 extra—usually by four—and tacks that fourth on to the regular $10 for the next four months.

What's new about the plan is its flexibility. Most revolving credit plans fix the top amount and the payments from the start. So when a customer wants to go over his credit limit, he's apt to go to another store for it.

The plan is still being tried out in several Federated stores. It works just as well for softgoods as hard. How important credit is to the chain, this figure shows: Some 60% of its total sales (an estimated $535-million in 1955) come from some form of credit buying.

• • •

Four A's Consent Decree Doesn't Change the Picture Much

The American Assn. of Advertising Agencies last week in a surprise move signed a consent decree that called a halt to Justice Dept.'s antitrust case against it. This week, the agency business was saying—as Four A's itself said—that the decree doesn't change anything significantly.

Legally, this seems to be the case. **Nothing in the decree bars any individual agency from doing business just as it has always done.** Psychologically, the most important result may be to speed up the breakdown of certain hoary practices that were beginning to give way anyhow.

Last May, Justice charged Four A's and four media associations with certain collective actions regarding agency commissions and standards that, it charged, violated the Sherman Act (BW—May7'55,p41). The other defendants at midweek were still in the fight.

In signing the decree, Four A's denied it had violated the law. Most of the things it agreed not to do were things it had never done anyway, it said. Specifically, it agreed to refrain from actions that:

- Fix agency commissions or limit the commission or credit that is due to any agency.
- Require an agency not to split commissions.
- Set up standards to be used by media to determine whether media should do business with or recognize an agency.
- Fix rates for advertisers who place their ads directly, without benefit of ad agency.
- Aim to make media adhere to published ad rates.
- Require or advise agencies not to submit copy, art work, and the like in soliciting an account from a national advertiser.

Four A's has agreed to drop its provisions against rebating and fee splitting and against preparing copy for soliciting an account. It will urge agencies to get written contracts with media and stick to them. It will continue to set requirements for membership in the association, including a scrutiny of an agency's credit rating. But how the media recognize an agency, what commissions the agencies get, or how the media charge direct advertisers, says Four A's, is strictly the media's and advertisers' business. Several publishers have already indicated they will stick to their old rates.

The trade is worried that Justice Dept.'s dim view of anything that looks like collective action may open the door further to the house agency—one owned or controlled by an advertiser. **If such an agency can crack an individual publisher, it will ease its path into other publications.**

For the rest, the old 15% commission that advertisers have traditionally paid to agencies is already being supplemented in many cases as agencies take on more and more jobs for their clients. Four A's step may shake the tradition a little more.

• • •

All Types of Stores Gain In Mounting Retail Sales

Preliminary findings of the 1954 Census of Retail Trade, just issued, contains some new material for the marketing world.

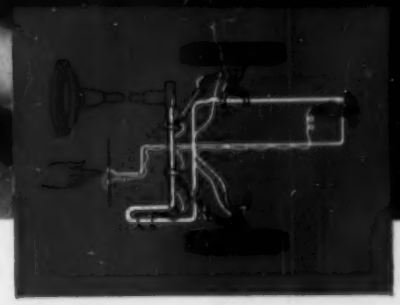
About the same number of retail establishments—1.7-million in 1954—chalked up roughly a third increase in sales over 1948—with all types of stores gaining.

Food stores continued to lead both in sales volume and share of the market. They accounted for 23.3% of total retail sales, compared with 22.3% in 1948, and showed a 35% volume increase. As expected, the automotive group also grabbed a larger share of the market—17.6% against 15.6% in 1948—with dollar sales up 48%. The general merchandise group (department, variety, general stores) lost some of its market share, dropping from 12.2% to 10.6% of total sales. Finally, rather surprisingly, furniture, home furnishings and appliance dealers just held their own with 5.1% of total sales.

Sales figures for 50 Standard Metropolitan Areas reflect the rapid growth of suburban retailing. In 48, they recorded a greater percent sales gain than the central city. But the central city still has the larger share of the market, and so its gains are more important dollarwise than the percentages suggest.

In 26 of the 50 Standard Metropolitan Areas, the central city accounted for more than half the total sales gain; in 33; it accounted for more than a third of the total.

A PRESS OF THE DASHBOARD BUTTON and grease is pumped to each bearing through ⅛" O.D. tubing of "Zytel." Available on both Lincoln and Mercury automobiles. (Tubing of "Zytel" fabricated by The Polymer Corp. of Reading, Pa., under the trade-mark "Nylaflow.")



Now, push-button lubrication

thanks to rugged, flexible tubing of Du Pont ZYTEL® nylon resin

The latest in passenger-car accessories is the Multi-Luber, a development of the Lincoln Engineering Co., of St. Louis, Missouri. At the touch of a control button on the instrument panel, lubricating grease is pumped through tough, flexible lines of "Zytel" nylon resin. Under normal conditions injection pressure is about 2,000 p.s.i. at the bearing ports. The automobile is completely lubricated in a few seconds. A 7-oz. disposable can of lubricant supplies the system. The Multi-Luber provides 225 lubrications before it is necessary to replace this can.

Tubing of Du Pont "Zytel" was selected for the Multi-Luber because "Zytel" is impervious to oil, grease and gasoline and because it is outstanding in its ability to withstand heat, cold and flexing . . . plus the elimination of the necessity for prebending before installation and the use of intermediate fittings. "Zytel" has undergone exhaustive durability tests without failure.

Because of its unique combination of properties, Du Pont "Zytel" is helping solve many industrial-design problems. It can be easily injection-molded into complex-shaped parts that are tough, light in weight and require little or no lubrication for their operation. Parts made of "Zytel" give long, trouble-free, silent service. To get complete facts on this efficient, money-saving engineering material, clip and mail this coupon.

ZYTEL® nylon resin | **ALATHON®** polyethylene resin

LUCITE® acrylic resin | **TEFLON®** tetrafluoroethylene resin

DU PONT

Reg. U.S. Pat. Off.

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

E. I. du Pont de Nemours & Co. (Inc.), Polychemicals Department
Room 332 Du Pont Building, Wilmington 98, Delaware
In Canada: Du Pont Company of Canada Limited, P.O. Box 660, Montreal, Quebec

Please send me more information on Du Pont "Zytel" nylon resin. I am interested in evaluating this material for:

_____

_____

_____

Name_____

Firm Name_____

Position_____

Type of Business_____

Street Address_____

City_____ State_____

MINING the muck, sandhog in front of tunneling shield hacks at river bottom, shoves spoil down through port into shield.

SCOOPING Inside shield, spoil is scooped onto conveyor that rides narrow-gauge track being built here.

New York's Tunnel Gets Dug Hard Way

Digging a tunnel this way, under compressed air below river bottom, is extra hazardous and costly—but it's what New York has to do to build its new vehicular tube to Jersey.

NEW YORK CITY, in burrowing out the complex network of under-river tunnels that help to meet the insatiable transportation needs of its waterbound Manhattan Island, has had an extra obstacle to overcome.

The nature of the river beds has made unavoidable the use of one of the most spectacular and hazardous of tunneling systems—the shield method of pushing a tunnel hole right through the earth, with "sandhogs" working under compressed air, as in these pictures.

The latest tunnel to be built by this method—the $100-million third vehicular tube of the New York-New Jersey Lincoln Tunnel—is getting right now into the most dangerous part of its hazardous under-river crossing. In this case, it's the last 100 ft. of Manhattan shoreline that's the hardest—because the sandhogs have to work through pilings and miscellaneous shoreline fill, instead of the softer silt in mid-river.

In a few weeks—perhaps by the middle of next month, if all goes well—the tube will hole through. About a year after the sandhogs finish their work, it will be ready to open. Then, with three tubes, one of them reversible in direction, the rush hour capacity of the Lincoln Tunnel will be doubled. With the miles of new and wider approaches, it should be able, for its $100-million worth, to handle well over twice the present total traffic.

And the Port of New York Authority will then be able to tally up results of a carefully organized health and safety program that aims to counteract the unavoidable perils of the shield

Three air locks in bulkhead—for materials, crew, and emergency—offer only access to compressed air work area.

PUSHING As shield inches forward, workmen bolt in place new section of tunnel ring.

TUNNEL starts on page 76

DECOMPRESSION must be timed just right to keep sandhogs from getting "bends."

AFTER 5 MIN., they open mouths to clear ear passages as air pressure falls.

AFTER 9 MIN., a chill haze forms from water vapor as pressure gets to normal.

method and make this the safest river crossing any New York tunnel has had.

• **Risks**—The difficulties inherent in construction work under water in pressurized air locks have discouraged use of the shield method wherever an alternative method would do the trick. The list of obstacles—the costs as well as the risks—looks pretty formidable when you count them up:

• At best, working conditions are far from satisfactory. Work space is cramped inside the sweating 30-ft. tube. Construction materials and equipment must be small enough to fit through air locks.

• Besides that, nearly all underriver boring is done under compressed air. This requires a specialized crew of highly paid sandhogs (averaging $29 a day) skilled in all branches of the construction trades—welders, electricians, carpenters, steel setters, drillers, and so on.

• Because of the special hazards, a good part of each man's working day must be spent in rest periods. According to the degree of air pressure, this varies from three hours off for each three hours on, up to six hours off for one-half hour on. On the current Lincoln Tunnel job, the contractors need a crew of 200 sandhogs in order to keep 25 men constantly on the job, in four shifts per 24 hours.

• Sandhogs are subject to an occupation disease—once termed caisson disease, now called decompression sickness, and known to the men by more graphic names such as the bends, the chokes, the screws, the staggers. Physicians blame it on air embolism—or formation of bubbles in human blood and tissue. The higher the air pressure to which a man is exposed (on the Lincoln Tunnel job, it can be up to 28 lb. per sq. in.), the more atmospheric gases go into solution in his body tissues and liquids. On rapid return to normal pressure, the gases come out of solution in tiny bubbles. You can see the same thing in a glass of water drawn from the tap that turns suddenly milky from millions of tiny bubbles.

When a sandhog is decompressed too fast, similar bubbles block blood vessels, irritate nerve tissues, collect in bone joints. Physicians watch the sandhogs constantly for signs of faulty circulation, respiratory troubles, and bone necrosis.

• **No Help for It**—Because of this impressive catalog of costs and hazards, the shield method has been abandoned almost everywhere. But New York's tunnel builders—though they hope each time will be the last—have had to rely on it exclusively. The reason is that New York harbor and the Hudson

River are peculiarly adapted to use of this technique.

The Lincoln Tunnel's third tube, for example, connects the Palisades of New Jersey and the bedrock of Manhattan. Though to a surface viewer these seem all of one piece, the two sides of the river are actually separated by a rock canyon; its walls fall off steeply from the shoreline to a depth of over 350 ft. at mid-river. The V-shaped canyon is filled, up to a depth of 25 ft. to 50 ft. below the river surface, with soft silt.

With such a bottom, its not practical to use the more efficient cut-and-cover method of dredging a trench and sinking prefabricated tunnel sections into it. The trench would fill right up with silt. Besides, the equipment could block river traffic and New York's busy midtown docks.

• **Pushing Along**—Construction plans for the third tube called for driving from the New Jersey under the river to connect with a land tunnel on the New York side. The tube bores through about 25 ft. below the surface of the silt. It has now pushed within a couple of hundred feet of its destination, and is nosing through the piles and bulkheads under the docks and wharfs of the Manhattan shoreline—which at this point is mostly fill.

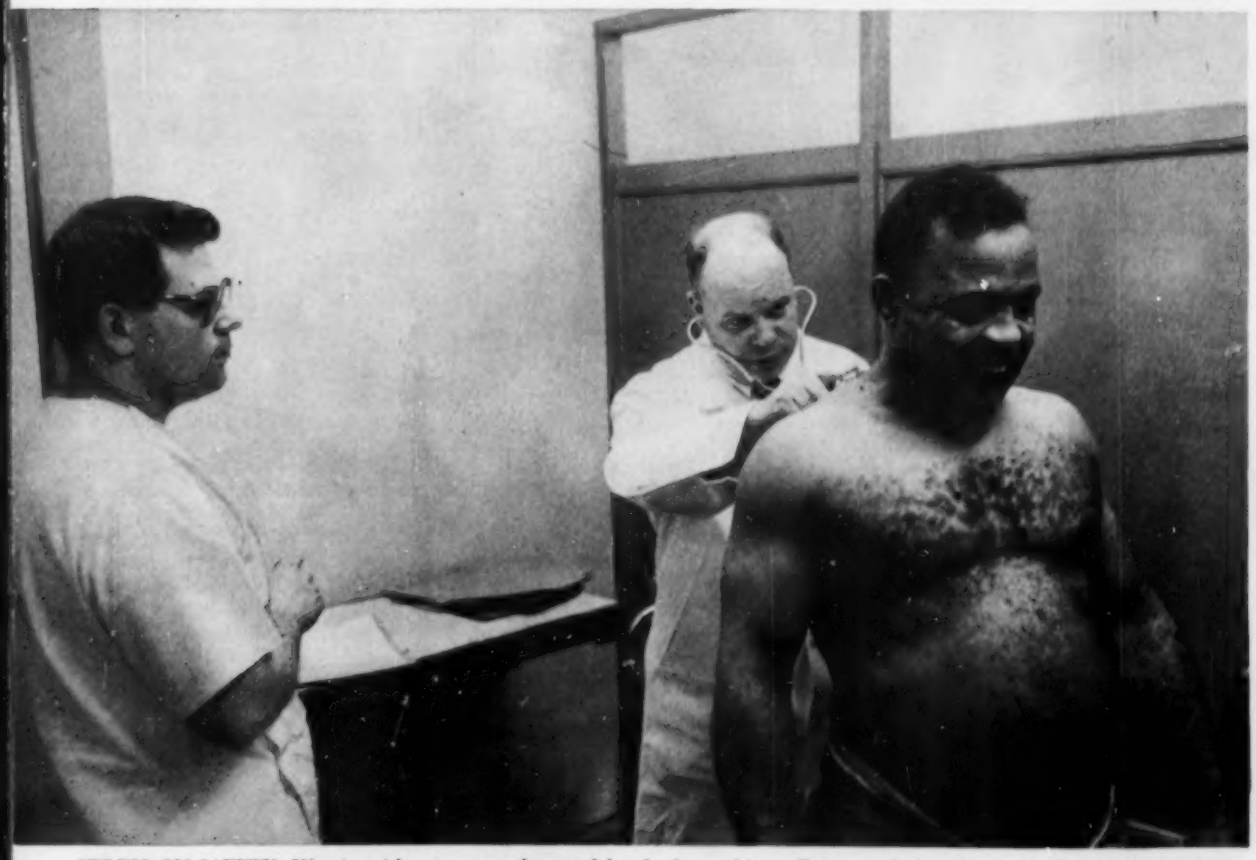
The pictures on pages 76-77 show how the shield is driven through the silt or fill in a series of 32-in. shoves. The cylindrical shield—18 ft. long, a little over 31 ft. in diameter, and weighing 240 tons—fits over the front end of the tunnel shell like a bottle cap. Twenty-eight hydraulic jacks spaced around its periphery and bearing against the last ring of the tunnel frame, push it forward with a force of 5,600 tons.

Each time the shield moves forward, sandhogs fill the 32-in. gap with a cast iron ring. The machined faces of the ring's seven segments are pulled tight by high tension bolts to seal out the river.

The shield method can be used in three different digging techniques:

In rock or hard clay sandhogs out in front of the shield—working inside a big bubble of compressed air, and protected by temporary timber bulkheads—have to clear a path, passing the spoil back through trap doors.

In medium density ground, the cutting lips around the edge of the shield act like a giant cookie cutter, and the shield can partly cut its own way. The



STRESS ON SAFETY—Warnings (above) are supplemented by checkups; this sandhog passed through test by Port Authority doctor.

Job Classification: **CRYSTAL GAZER**

Requirements: College degree. Must be a practical visionary having advanced technical skill combined with creative im-

CRYSTAL GAZERS' at Texas Instruments have jobs that did not exist a few years ago . . . jobs made possible by swift advances in the fields of electronics, military systems, and geophysics . . . jobs requiring so much basic knowledge that one in four TI employees is a college graduate.

New jobs and opportunities throughout U. S. industry are, in turn, being created by all these TI people. From Texas Instruments laboratories and production lines are coming new commodities to meet needs never before satisfied . . . mass-produced high temperature silicon and high frequency germanium transistors . . . miniature electronic components of extreme accuracy . . . military airborne detection systems that protect our country from surprise attack . . . improved methods and sensitive instruments used in locating petroleum and valuable mineral deposits.

This commercial pioneering is a dynamic force in the planned growth of Texas Instruments. In addition to being one of the world's largest geophysical contractors, TI now serves industry with nation-wide sales offices . . . supplied by manufacturing plants near the geographical center of the United States.

keep an eye on TI

TEXAS INSTRUMENTS
INCORPORATED
6000 LEMMON AVENUE DALLAS 9 TEXAS

GEOPHYSICAL EXPLORATION | GEOPHYSICAL INSTRUMENTS | INDUSTRIAL SUPPLIER

mud in front is held back by breast-plates pushed forward by hydraulic jacks. Sandhogs working from platforms clear out the spoil.

In soft, wet silt—through which the third Lincoln tube passed for most of its journey—the shield just bulls its way through. The third tube shield simply displaced about 80% of the silt in its way, pushing up a 10-ft. hump in the river bottom. An Army barge hovered overhead, dredging up this hump. The remaining 20% of the spoil entered the tube through an A-shaped port in the shield face, and was spread over the bottom of the tube shell as ballast. The shell is so buoyant it might float before being weighed down with its 14-in. concrete lining, plus roadbed and ceiling.

• **Camera Man**—If you could get inside the third tube shield you might see, along with sandhogs busily disposing of the spoil or tightening the tunnel rings, a jovial, round-faced man apparently doing nothing but getting in everybody's way taking pictures. Actually, his picture-taking operation is a highly important part of the setup—and the man himslf, Vincent W. Mooney, Port of New York Authority safety engineer, is the key figure in the Authority's safety campaign on the job.

Mooney prowls the job constantly, takes his pictures as a graphic demonstration of unsafe practices when he comes on a man standing under a scaffold without his hard hat, or mounted on a slippery pipe to work, or in some other perilous spot he should avoid. Mooney's camera is a Polaroid—the kind that produces a picture in a minute—and the worker gets it as soon as Mooney snaps it. But since there's no negative, nobody else ever sees it—it's just Mooney's way of saying, "Watch yourself."

• **Drive**—The safety program, aimed at counterbalancing some of the disadvantages of the shield method of tunneling, stems from the Port Authority's initial look into the availability of compensation insurance for the sandhogs. The authority found the premium charge would come to a staggering 53% of payroll—and even at that, contractors might not be able to get insurance.

So the Port Authority bought the insurance itself, making all arrangements before contract bidding began. That enabled the Authority to set up an over-all safety program for all contractors on the third tube.

(Before the tunnel is opened in something more than a year from now, a total of 47 contracts will be involved—including work on the tunnel interior and roadbed, and the approaches at both ends. The boring through of the tube and construction of the tunnel's outer shell is a joint operation by three contracting companies, lumped under

Instant shifts on the go

BIG NEW ADVANCE in shovel-type loaders is the Hough Model HO 4-wheel-drive PAYLOADER.

And one of the biggest features of this 2-yard workhorse is its great new TORQMATIC DRIVE designed by Allison expressly for shovel-type loaders.

Hough calls this integrated TORQMATIC Converter-Transmission team the "easiest-operating, fastest-acting, most efficient power-shift transmission ever put into a tractor shovel."

And they also say that the TORQMATIC DRIVE *permits "instant shifting from any speed range to any other on the go —no stopping, no foot clutching."*

That means faster job cycles, easier loader operations, more yardage moved per shift.

The HO PAYLOADER is available with either gasoline or Diesel power. The engines will last longer, operate more efficiently driving through a TORQMATIC Converter because it instantly matches engine speed and torque to the load—multiplies engine torque up to 350% to broaden the *working* horsepower range.

Today Allison's new TORQMATIC DRIVE is available in many models of shovel-type loaders—will soon be offered in a wide range of other equipment made by leading manufacturers.

If you'd build or buy a better product, get full information on this great new TORQMATIC DRIVE by writing to Allison Division of General Motors, Box 894B, Indianapolis 6, Indiana.

GM TORQMATIC

Allison
TORQMATIC DRIVES

COST LESS THAN OTHER CRANES FOR SIMILAR LIFTING JOBS

Series "D" 'Load Lifter' Cranes are for average industrial service. To keep quality high and prices low, they are highly standardized. We build them in 1 to 20-ton capacities with spans up to 80 feet and with cage or floor control. You can order the exact crane you want from a catalog and get a combination of features not available entirely even in the most expensive cranes! For example:

- High hook lift with comparatively low headroom provides a plus value in lifting on every installation.
- Anti-friction bearings throughout minimize wear and hold down operating costs.
- All gears, including bridge and trolley drive gears, operate in oil to keep maintenance low.
- Positive magnetic control: push button on floor-operated cranes; master switches on cage-controlled cranes. Meet specific needs without compromise.
- Ball-bearing equipped rotating axles carry bridge and trolley wheels. Long wheel bearing life assured.
- Double braking system controls drift, provides for fast, accurate spotting; adds extra safety.
- Rugged hoisting trolley gives efficient service under tough operating conditions.
- Three-girder bridge on moderate span cranes; box-section welded girders on cranes with spans over 50 feet. Strength where strength is needed most eliminates whipping and skewing.
- Reduce your load-handling costs substantially with an efficient, economical Series "D" All-Electric 'Load Lifter' Crane. Catalog 221 contains complete size, type, trolley style, span and other data. Write for a copy and make your selection.

MAXWELL MANNING & MOORE INC. MM&M TRADE MARK

'Load Lifter'® CRANES

MANNING, MAXWELL & MOORE, INC.
MUSKEGON, MICHIGAN

Builders of "Shaw-Box" and 'Load Lifter' Cranes, 'Budgit' and 'Load Lifter' Hoists and other lifting specialties. Makers of 'Ashcroft' Gauges, 'Hancock' Valves, 'Consolidated' Safety and Relief Valves, 'American' and 'American-Microsen' Industrial Instruments, and Aircraft Products.

the designation Mason-Johnson-MacLean, of Weehawken, N. J. The three participants are Mason & Hangar Co., Inc.; the Arthur A. Johnson Corp.; and MacLean-Grove & Co., Inc.)

• **Payoff**—So far, the safety program has paid off handsomely. In 587 working days—including demolition of buildings, roadway building, alteration of approaches, and land and water tunneling—there have been 72 lost-time accidents. In man-hours, it adds up to about 63,000 hours lost, to 1,178,000 worked. One man was killed on the job. As for decompression sickness, there have been only four cases of the bends—and one of those is doubtful.

There have been some other difficulties not directly related to safety. A month ago, drillers in the New York land tunnel ran into trouble when water seeped through shoreline rock that was thought to be solid but turned out to be porous, flooding the land tunnel.

• **Two-Way**—The safety record to date has been racked up by a two-pronged campaign, emphasizing:

• Preventive medicine. A miniature, but fully equipped hospital on the Jersey side of the river provides round-the-clock service (and also pre-placement examinations). Two points have helped assure success: (1) Because it's run by the Authority rather than the contractors, workers are assured they can go to it in strict confidence; and (2) because its records are kept closed, the Authority believes, a high proportion of accidents that occur are reported.

• Safety engineering—in charge of the man with the camera, Vince Mooney. Mooney was hired specially for the job because he is a graduate industrial engineer with 15 years of safety engineering experience—and because he has a knack of getting on with construction men.

Mooney's campaign is not based primarily on signs and slogans—though the yards bristle with them—but on enlisting unions, workers, and management. He set up a three-level system of safety supervision. On the union side, this involves in the top policy-making group the presidents of the 11 or so union locals involved in the tunnel project—ranking on an equal footing with top Port Authority men and contractors. A second-level group of business agents and delegates discusses working methods with foremen and supervisors. The third-level union group, made up of shop stewards, considers individual safety violations, passes on recommendations for safer operating methods on specific jobs.

If the safety record to date carries through, the final tally may win the Port Authority a rebate on its insurance premiums that will more than pay the cost of the safety program. END

that's what I call a price list!

It tells our customers exactly what they want and need to know about our products!

It's easy to read. It's businesslike. It's out on time and it's inexpensive too.

Advances in MODERN duplicating let you have copies of price lists like this—or catalog sheets, office forms, bulletins and other material produced at high speed in your own office—produced in black and/or color on a wide variety of paper and card stocks in a range of sizes.

For full information about MODERN duplicating (all four major processes—mimeograph, offset, AZOGRAPH and spirit) call your A. B. Dick Company distributor. You will find him listed under Duplicating Machines in the classified section of your phone book. Or write A. B. Dick Company, 5700 West Touhy Avenue, Chicago 31, Illinois.

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now! "shopworn" is an obsolete term for Martex!

This is the unique extruded vinyl film that solved an "impossible" packaging problem for Martex. Its name is **clopane**. It is the lowest cost, crystal-clear, lightweight vinyl film yet developed ... and one of the most versatile! It is moisture-proof, waterproof, and does not embrittle with age ... has remarkable tear strength and burst strength ... and a soft "hand", pleasing to the touch. It takes printing magnificently. In short, **clopane** does jobs no other film can do so well ... or so economically.

Here's what Mr. W. C. Hartman, Vice President in charge of sales for Martex, has to say about the job **clopane** did for his firm: "**clopane** has proved to be extremely satisfactory. Its shelf life is excellent. It allows our kitchen sets to be seen at their best, and encourages impulse buying without allowing the merchandise to become soiled or shopworn."

clopane is available up to 108 inch widths in sheets or rolls ... interleaved if you wish. Also in endless, seamless tubes from 2 inches to 54 inches in width. For complete information, write, wire or phone.

things look better far longer in

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sparkling clear film

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For still lower cost packaging investigate Clopay's polyethylene films today!

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Clopay Square, Cincinnati 14, Ohio

Gentlemen:
Please send me FREE copy of "clopane Facts".

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Company.....

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City.....State.....

STEAM BLOWS from 600 feet under the California landscape in a man-made . . .

Geyser to Make Electricity

A California company is drilling steam wells in volcanic areas, to get natural steam to turn electric generators. Italy has been doing it for 50 years.

Steam wells may provide California with a new source of power for generating electricity. The roaring jet in the picture above is evidence of a successful strike in the Big Geysers area, about 85 miles north of San Francisco.

This well was drilled to 603 feet by Magma Power Co., Inc., which plans to drill more wells in the area this spring.

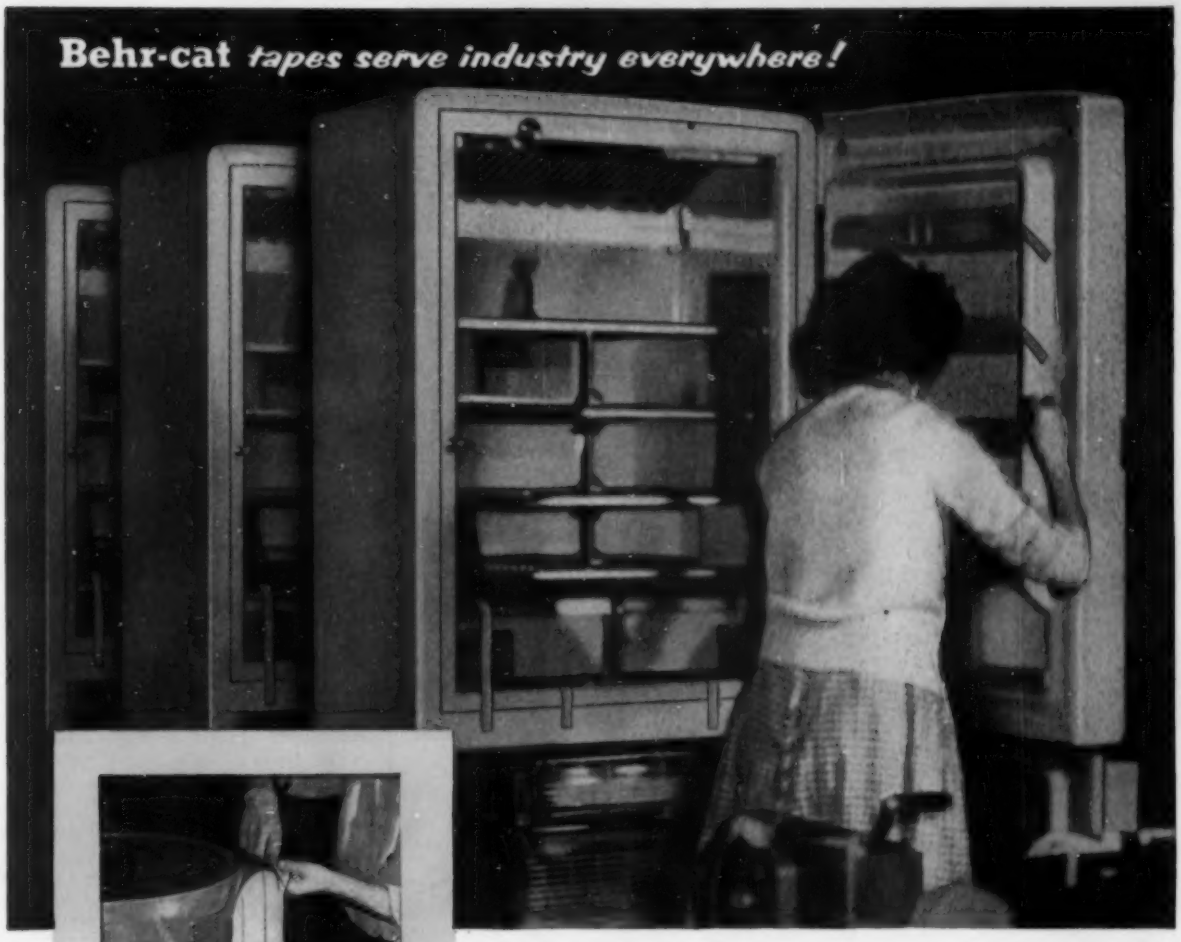
The company hopes to find enough natural steam power to run a 100,000-kw. generating plant. Magma estimates the cost of such a plant at $8.5-million, compared with $15-million for a conventional steam plant of the same capacity.

• **Subterranean Steam**—Pockets of steam are found near many active and inactive volcanoes, where a body of hot molten rock called the magma, comes close to the ground surface.

Geologists have several theories about the origin of this underground steam. It may come from deep-seated pools of water held at high temperature and high pressure; it may be a product of the distillation of granites near very hot molten magmas, or it may come directly from the magma itself as the molten rock solidifies.

Whatever its origin, steam is accepted as a natural product of the earth's internal activity, and scientists believe it occurs in many more places than are generally realized. Deeper

Behr-cat *tapes serve industry everywhere!*



Behr-cat No. 113 Masking Tape — for masking treated metal surfaces.

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BEHR-CAT MASKING TAPE No. 111 is a natural for holding doors, drawers and movable parts secure and safe during shipment. Whether the job is holding, as this one illustrated in the photo above, or protecting, sealing, stripping, or a multitude of other operations, Behr-cat Masking Tapes are tops for production-boosting and cost-saving. The Behr-cat Tape Brochure is full of similar application illustrations. For your copy, write Behr-Manning, Troy, N. Y., Dept. BW-2.

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T-1

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▲ SHARPENING STONES
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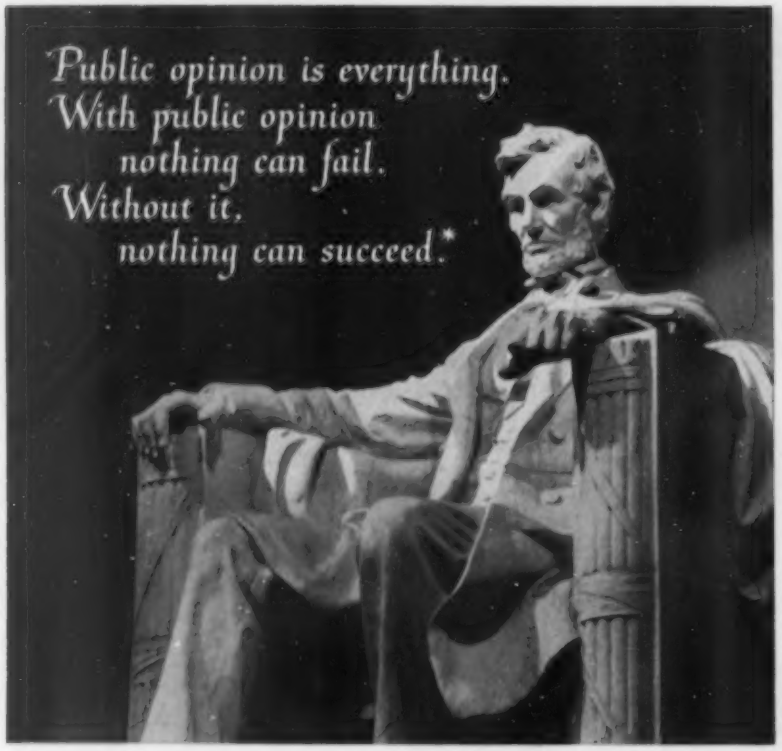

What Lincoln said applies to *your* business

With public opinion on *your* side, your chances of business success are good. People think well of your company and its policies. They look for your product when they buy and like to tell their friends why they prefer your brand.

Without public opinion in your favor, sales become hard to make and competing brands may win public preference.

Keep Public Opinion Friendly

You can keep people friendly to your brand by supplying them with the facts about your superiority. Don't withhold part of your sales story. Give people *all* the facts, both major and minor. Give them the facts IN PRINT for ready reference: in broadsides, booklets, bulletins, brochures, folders, annuals, reports, catalogs, manuals — pieces that can be kept or passed along from friend to friend.

Printed pieces permit you to tell your whole story convincingly. They give you room to illustrate, describe and document each sales point with persuasion.

Your Ally — A Good Printer

You can rely on a good printer to save you work, money and time in the creation of printed pieces. But please remember that he can perform most effectively only when you call him in at the *very start* of a job. Don't wait until the creative part is under way. If you delay in consulting him, you restrict him to arbitrary limitations and needlessly handicap his skills.

Give your printer a free hand in the choice of printing papers. Chances are he will specify Warren's Standard Printing Papers for he respects their brilliant, uniform surfaces and the top quality printing results they deliver time after time, year after year.

Your printer seeks your satisfaction and he knows that Warren papers can produce the most effective printed pieces for you. *S. D. Warren Company, 89 Broad Street, Boston 1, Massachusetts.*

*From the first Lincoln-Douglas debate, August 21, 1858

BETTER PAPER — BETTER PRINTING

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Warren's STANDARD

Printing Papers

drilling, they say, could probably tap this steam in new areas.

• **Already in Italy**—Endogenous power, as it is called, is already generating electric power in Lardarello, Italy, and is under development in two other promising places besides California. One development is in New Zealand; the other, in Michoachan State, Mexico.

The famous Lardarello steam wells have been harnessed for power production since 1905. Previously, since 1810, they had been providing heat and chemical byproducts. Since 1951, steam from 160 wells at Lardarello has been turning 23 sets of generators, putting out a total of 258,000 kw. The natural steam is fed directly to turbines, whose blades are made of stainless steel to withstand the corrosive effects of the mineral-laden steam. Plans call for a 40% expansion of the Lardarello installation sometime in the near future.

• **California Geysers**—According to a Carnegie Institution report, the California geysers that Magma plans to develop are very similar to those in Italy. However, they have never been investigated beyond a few test wells.

Between 1921 and 1925, a half-dozen wells were drilled at Big Geysers, to depths ranging from 60 to 400 feet. They showed a maximum temperature of only 480F. Magma is relying on a theory that the deeper a well goes, the hotter the steam gets. Last year, it revived drilling at Big Geysers, pushed a well down to 603 feet and found a bottom-hole temperature of 500F.

On the test well, Magma regards quantity and temperature of the steam as satisfactory, but control equipment proved inadequate and had to be redesigned. Now Magma intends to resume drilling to determine the potential of its steam.

• **Putting It to Use**—If the steam continues to look promising, Magma expects eventually to install generators and sell the electric power, either directly to industrial users or to Pacific Gas & Electric Co., which has transmission lines 10 miles away. To make the cost of steam wells competitive with that of boiler equipment, Magma says it has developed techniques for drilling a group of 1,500-foot wells for $25,000 to $30,000 per well. On current output of steam, it would take about 10 wells hooked together to drive a 25,000-kw. generator, Magma estimates.

However, deeper wells would tap the steam nearer its source, before it had been de-energized by working its way upward through fissures. In Italy, a 3,000-foot well brought in a flow rated at 10,000 kw. of electric power capacity, and Magma thinks a 1,500-foot well at Big Geysers might yield 7,500 kw. END

Rubber . . . from the silicone tree

ATOMS from oil and sand—combined and rearranged by modern science—have given us amazing new chemicals called silicones. And one of the fastest growing branches of the silicone family tree is an unusual substance known as silicone rubber.

INDUSTRY NEEDED a material—with the desirable properties of rubber—that could stand up under extremes of heat and cold. An answer was found with the development of silicone rubber.

THIS REMARKABLE MATERIAL is not affected by exposure to sub-zero temperatures. Planes that fly in the intense cold of the stratosphere have many parts made of silicone rubber. And that strip around the door of home freezers will stay pliable and form a tight seal when it's silicone rubber.

EQUALLY IMMUNE to high temperatures, it can seal a steam iron or a pressure cooker and never feel the heat. Silicone-insulated electric wires will last for years under conditions where standard insulation would burn out in weeks. And silicone rubber is highly resistant to attack by oil and chemicals.

SILICONE RUBBER is but one of the many useful products that silicone chemistry has created and improved in the past few years. The people of Union Carbide will continue their efforts to pioneer with silicones to serve you in every possible way.

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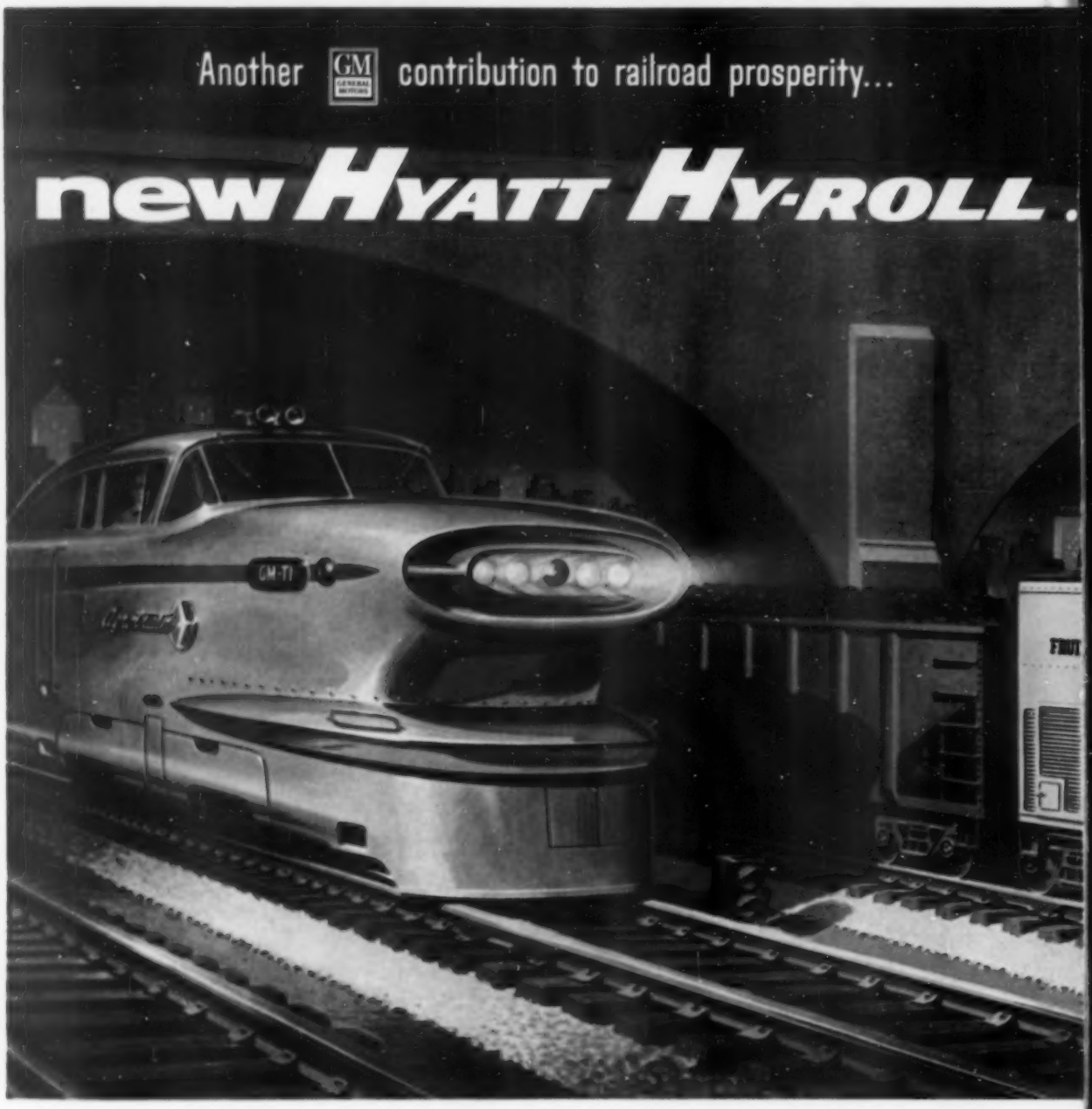
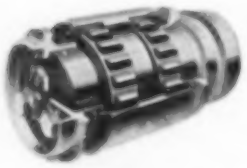
Another GM contribution to railroad prosperity...

new HYATT HY-ROLL.



Roller bearings in GM's Aerotrain were produced by the makers of the Hyatt Hy-Roll!



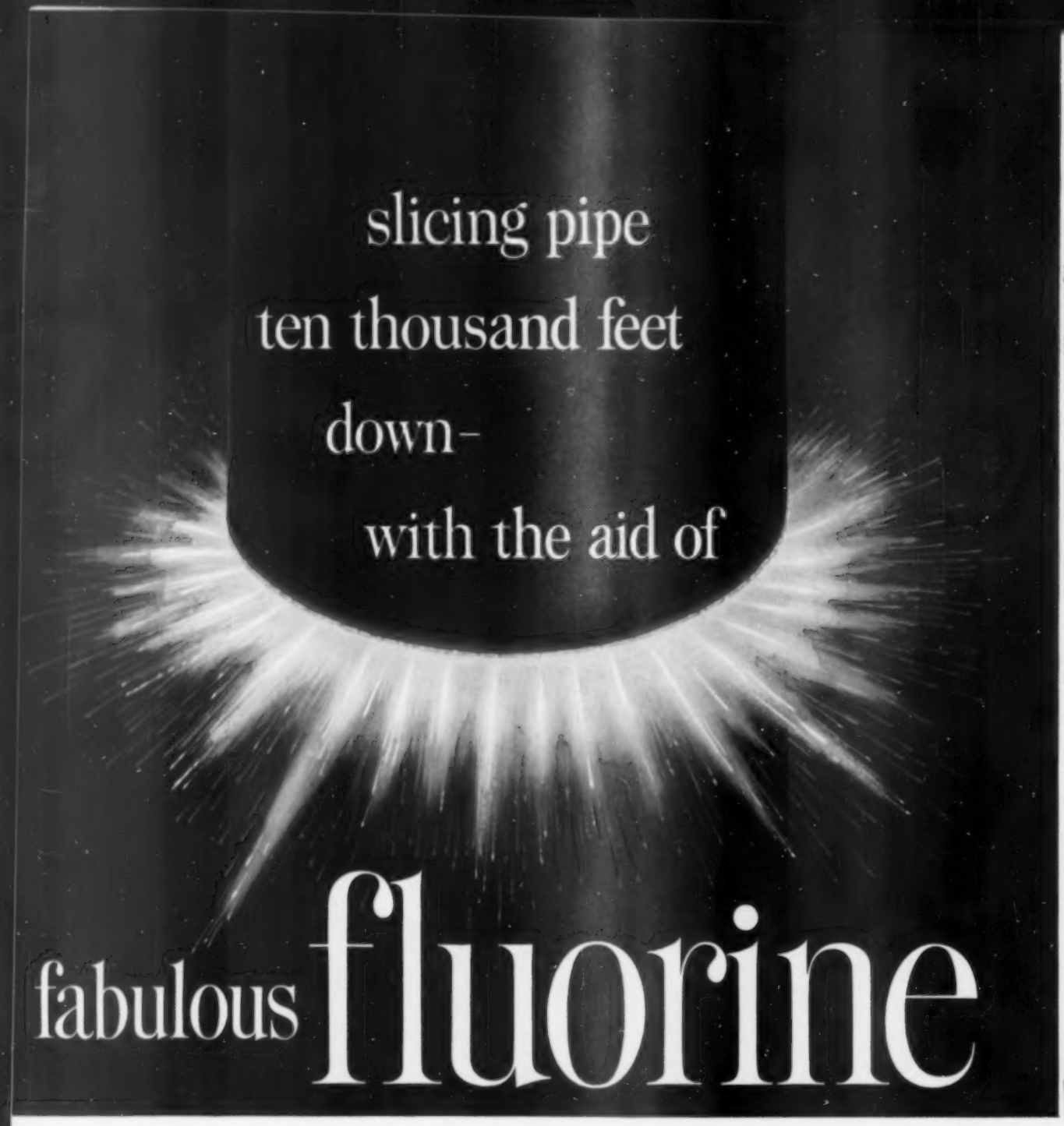
Like all Hyatts on the GM Aerotrain and over *two-thirds* of all diesels, the Hyatt Hy-Roll has *high-capacity straight cylindrical rollers.*

Here is a *new* roller bearing for railroad freight cars—so *simple*, so *dependable*, so *economical* that it makes the big switch to roller bearing freight *practical!* This one bearing fits *both* new and old cars. It comes with a three-year lubricant supply sealed in. Parts are interchangeable, and there are *only four* on the axle. No fitting adjustments are needed. Installation and maintenance are easier and more economical than ever before. Switching to Hy-Rolls *now* will get rid of the hotbox burden *for good*—permit faster, *non-stop* freight schedules—improve railroads' service, earnings and competitive position throughout the years ahead. In short, the new Hyatt Hy-Roll is *built for the long haul* in every sense of the word! Hyatt Bearings Division, General Motors Corporation, Harrison, N. J.

has built over half of all roller bearings
in use on American railroads

HYATT

HY-ROLL BEARINGS FOR NON-STOP FREIGHT



This lightning-fast *chemical* cutter was perfected by McCullough Tool Company with the help of Pennsalt. Deep in oil-well bores, it harnesses the incendiary power of the halogen fluorides to slice and salvage costly pipe.

FLUORINE HAS ONLY BEGUN to reveal its secrets—Pennsalt has been a prime force in uncovering them. Fluorine chemicals are already helping to make new high-temperature and corrosion-resistant materials, plastics, refrigerants, aerosol propellants, rocket-fuel oxidizers.

We will gladly work with you to develop fluorine applications, as we've done with other companies. Write for technical advice. Customer Service Dept. 223, Pennsylvania Salt Manufacturing Company, Three Penn Center Plaza, Philadelphia 2, Pennsylvania.

Pennsalt Chemicals

PENNSYLVANIA SALT MANUFACTURING COMPANY

PRODUCTION BRIEFS

Radioactive steel balls dropped in oil and traced with Geiger counters are expected to solve a major refining problem by giving accurate measures of heavy particle settling rates. The process was developed by a group of Alberta, Canada, oil researchers.

•

Plastics production will be stepped up by Borg-Warner Corp., which has purchased a site for a $10-million plant in Washington, W. Va., to produce Cycolac. Demand for the plastics resin has exceeded capacity of the company's two Carbon Chemical Div. plants at Gary, Ind. Cycolac has a wide range of uses, from bowling pins to TV cabinets.

•

A new cellophane plant of American Viscose Corp. at Marcus Hook, Pa., will have a capacity of 50-million lb. annually—an increase of 50% over company's present capacity. The new facilities will go into production in about 15 months.

•

Cloud seeding will be used to help Crown Zellerbach get its newsprint mills at Ocean Falls, B. C., back into production. Water shortages curtailed the company's operations at these plants.

•

Esso research labs will build a $1.5-million research laboratory next to its Baton Rouge refinery. The three-story building, scheduled for completion in 1957, will be equipped with advanced X-ray and high-speed computing facilities. It will have a 150-man staff.

•

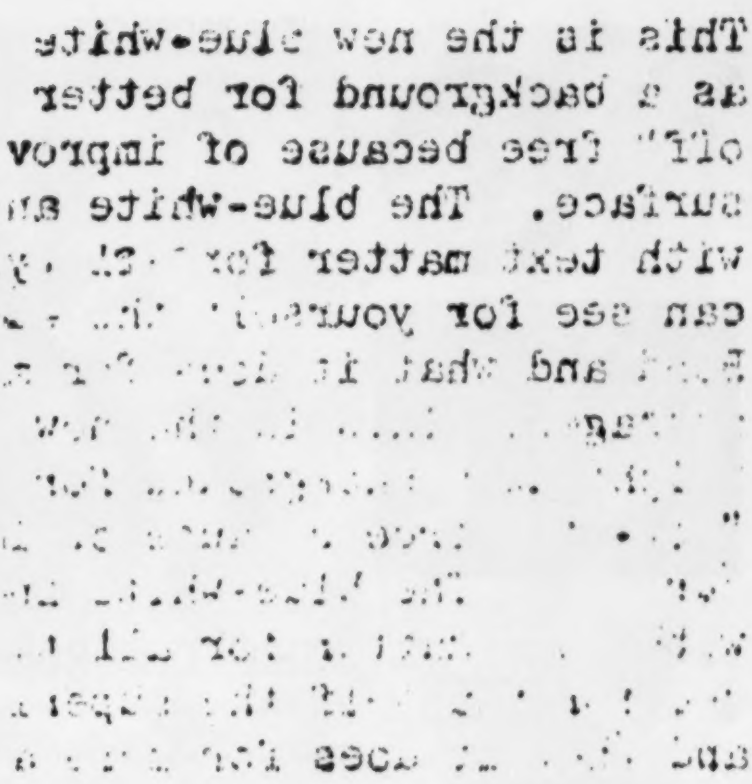
Technicolor Motion Picture Corp. is getting into color lithography, through formation of a graphic arts division. The company wants to carry the skill and experience in color it acquired in motion pictures to other fields, particularly in the reproduction of color on the printed page. The division expects to be open for business by July 1.

•

A new $2.5-million building will house National Cash Register Co.'s manufacturing plant and offices at its Ithaca (N. Y.) adding machine division. The present facilities will be converted to warehouse and shipping operations.

•

A $3-million expansion program at Kaiser Chemicals Div. will increase by more than 50% the division's capacity to produce refractories at its plant in Columbiana, Ohio, and its seawater magnesia plant at Moss Landing, Calif. The seawater plant produces periclase, a form of magnesium oxide used in basic refractories for high temperature furnaces.



Do you know set-off when you see it?

ALMOST EVERYONE has seen mimeographed material with ink marks on the back, as shown above. That's called "set-off". It looks messy. It happens when wet ink smears on the bottom of one sheet from the top of another as sheets pile up on the delivery board of the mimeograph machine.

What can you do to have *clean* mimeographing, without set-off, or the smearing of the copy itself while the set-off is happening?

A makeshift way to combat this is by slip-sheeting—putting a blank piece of paper on each "printed" sheet as it is delivered from the machine's impression cylinder. That does the job—the expensive way.

The better way is simple. You specify Hammermill Mimeo-Bond. It's the only mimeographing paper made with the "air-cushion surface". Thousands of almost microscopic air pockets temporarily insulate the drying ink from the sheet being delivered on top of it. With Hammermill Mimeo-Bond you get fast running operation and neat, attractive copies without any fuss or muss.

Hammermill Mimeo-Bond, with its exclusive air-cushion surface, is available at the same cost as Hammermill Bond. Comes in white and seven sparkling colors that can be matched with Hammermill Bond Envelopes for your smart mailings. It's watermarked, of course. Use it for company announcements, plant bulletins, sales letters, price lists, anything that comes off your stencil duplicating machine.

You can get Hammermill Mimeo-Bond with printed mastheads and fill-in forms from your printer or commercial letter shop, plain from stationers. Large wholesale stocks are carried by Hammermill agents in 125 cities.

For sample sheets of Hammermill Mimeo-Bond (or Hammermill Duplicator paper) write to Hammermill Paper Company, 1455 East Lake Rd., Erie 6, Pa.

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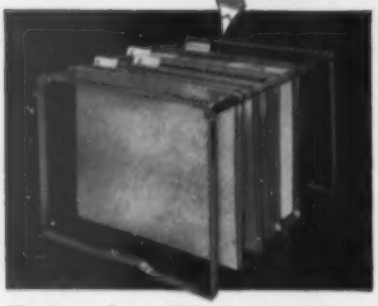

Here's a real cure-all for slumping, sagging, disorderly file folders. With new Verti-Swing, your folders will hang and slide smoothly on a steel frame adaptable to any standard file cabinet. Available in Legal size, too.

See your G/W dealer or write us for complete information and illustrated brochure.

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*T. M. Reg. U. S. Pat. Off.

F. G. LUDWIG, INC.

837 Coulter Street, Old Saybrook, Conn.

NEW PRODUCTS

This "Tire" Rolls on Gasoline

This watermelon-shaped rubber tank is a 250-gal. container for transporting and storing fuels and other liquids. In construction, it's really a sort of unconventional tire, with nylon cord and a fuel-proof lining. Called "Rolli-Tanker," it can be rolled over the ground and floated over the water without bursting. To permit easy handling, the container is mounted on hubs and axles—with a drawbar, as above. Goodyear Tire & Rubber Co. developed the rubber tank, builds it in different sizes.

• *Source: Aviation Products Div., Goodyear Tire & Rubber Co., Akron, Ohio.*

GE Puts Versatility Into New Motors

Company says its new line of d-c motors and generators has many features found in custom-built equipment.

A complete new series of direct-current motors and generators is now rolling off the assembly line at General Electric Co.'s Erie (Pa.) plant. The new machines have been dubbed the Kinamatic line, and represent an attempt to wrap up most of the latest d-c motor and generator developments in one versatile set of equipment.

In this wrap-up, the company has followed the latest National Electrical Manufacturers Assn. standards for future design. GE claims to have the first complete series of motors and generators designed according to these recommendations.

There is a growing market for d-c motors in American industry, according to General Electric. Since World War II, sales of direct current motors have jumped 85%, compared to a 20% increase for all types of electric motors.

• **Features**—GE makes the motors in a wide range of ratings from 1 hp. to 150 hp. and ¼ kw. to 100 kw. Many of the features built into the new units could only be obtained before on custom-built assemblies. Some of the most important of these are:

• Three ways to adjust speed—by armature voltage control, field strength control, or a combination of both.

• Ability to operate at any speed efficiently. This includes a range below primary rated speeds all the way down to stalling torque.

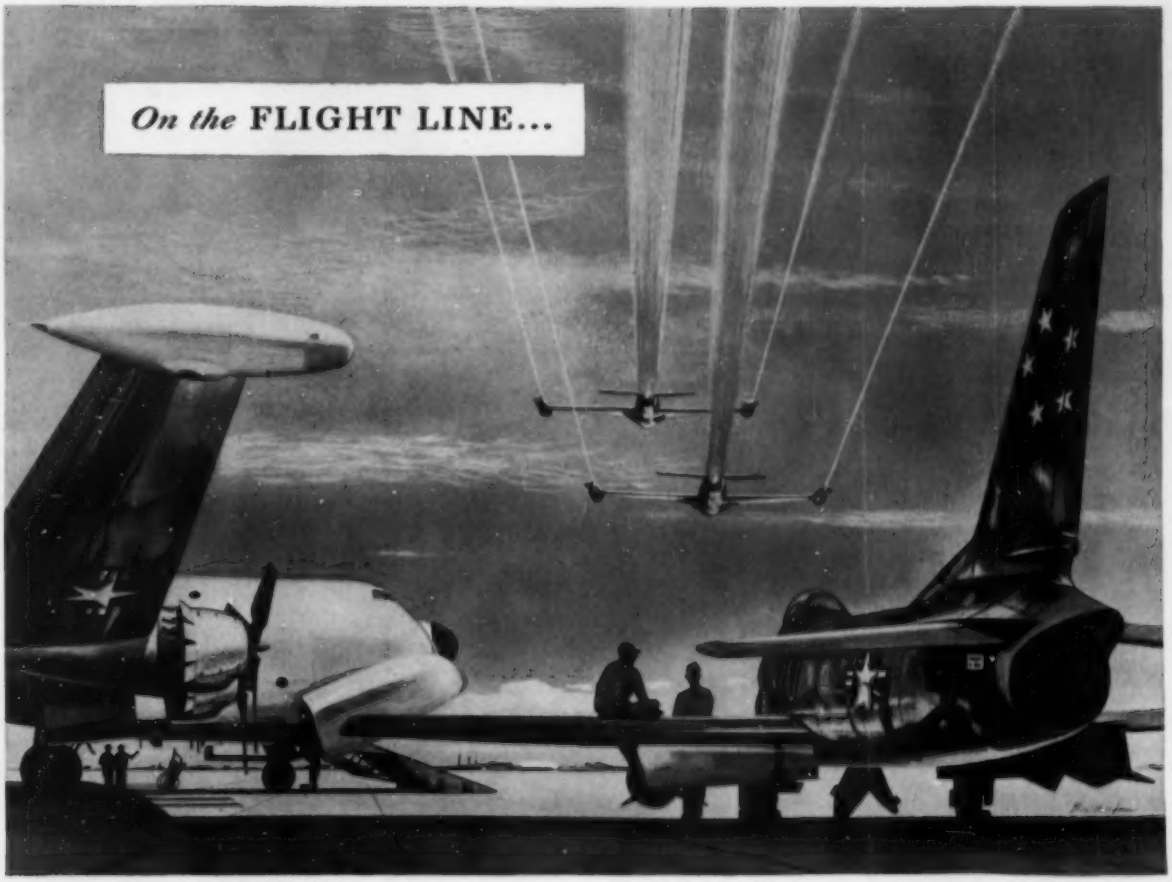
• Drip-proof enclosures on all models.

• High temperature Class B insulation throughout.

• Significantly reduced armature inertia for quicker speed and direction changes.

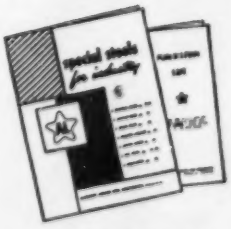
The new line has been designed for ruggedness and clean appearance to complement modern machine tool design. The motors are lighter, have one-third more horsepower per pound.

• **Lower Cost**—The Kinamatic units cost about 2% less than the older lines. But the saving would be bigger for buyers who ordinarily would have to purchase custom-built equipment. END



FIRST COST *can be the* LEAST COST

if it's the LAST COST



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2. PUBLICATION LIST . . . a complete listing of all AL publications, both technical and nontechnical (over 100 in all), with a handy order form for your convenience.

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★ ★ ★ ★ The Allegheny stainless and super high-temperature steels used in jet and rocket aircraft engines and equipment are pure economy, because they do the job that's required of them, and they *last!* They stand up under metal-killing conditions of heat, load and corrosion, and they're dependable.

There are lots of other jobs for stainless steel that aren't as spectacular, or perhaps as tough, as those aboard a jet. Like, for example, in hospital or kitchen equipment —or in cars, trains, appliances, buildings, etc. But, in these and thousands of other cases, stainless again gets the call. And usually, it's for the same big reason . . . because it not only does the job better, but lasts longer and costs less in the long run than any other material on the market.

And that brings up this question: where can Allegheny Stainless help *you* either to make money, or to save it? If you have a product or equipment problem, call us in . . . let our Engineering and Research Staff lend a hand. ***Allegheny Ludlum Steel Corporation, Oliver Bldg., Pittsburgh 22, Pa.***

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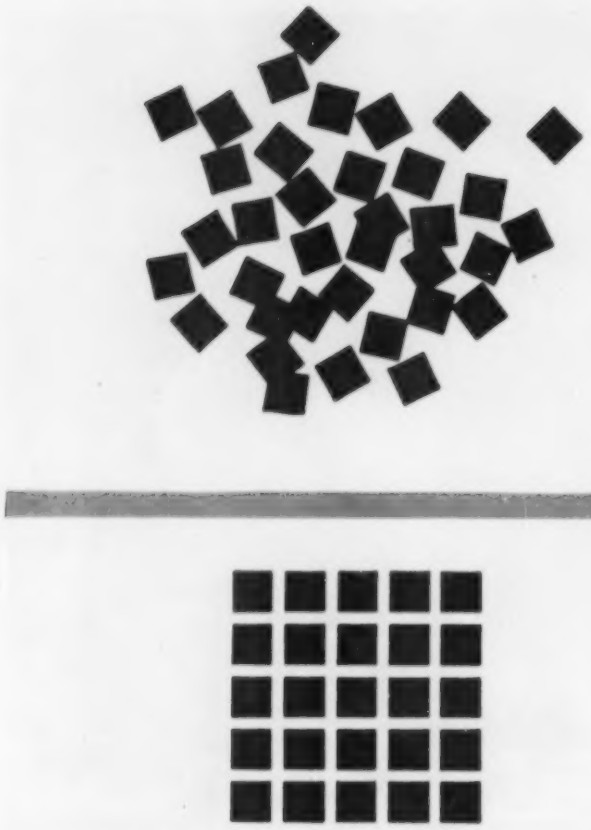

The Olivetti Duplex Adding Machine does everything a conventional adding machine does, does it faster, and does things the conventional machine can't do, such as storing totals in a second register. Simplified duplex controls, comfort-slope keyboard, large capacity and high-speed cycling are further advantages. Sold and serviced by Olivetti branch offices and 450 dealers in all states. For information, write to Olivetti Corporation of America, Dept. HF, 580 Fifth Ave., New York 36, N.Y.

olivetti

NEW PRODUCTS BRIEFS

All-purpose Kodacolor, for use either outdoors or indoors, is replacing Eastman Kodak Co.'s standard Kodacolor line. Kodacolor produces colored prints rather than transparencies, as in Kodachrome. The photofinisher adjusts printing time for each frame according to whether the exposure was made under artificial or natural light. Under an antitrust ruling, Eastman last summer released the process for developing and printing color film to amateurs and to independent finishers (BW—Jul.30'55,p50).

•

Patients won't be disturbed by the public-address paging of doctors in a hospital that's equipped with a new radio device produced by Motorola, Inc. Doctors carry 10-oz. pocket-sized transistor receivers that buzz their respective coded page signals, then give them a voice message, privately. The transmitter carries 264 paging code combinations. The system has been tried so far mostly in hospitals but can also be used in factories and offices.

•

Automatic air drills made by Beeson-Reichert, Inc., of Toledo go through a five-step cycle when a button is pushed: (1) power on, (2) drill moves to work, (3) drill bores hole to preset depth, (4) drill retracts, (5) power off. Units are designed to be bench-mounted, suspended, or locked to drill rigs as part of automatic production lines.

•

Electronic noise-generating is the latest job given to the versatile transistor. Universal Atomics Corp. of New York makes a 6-lb. transistor unit to produce noise interference for testing amplifiers, computers, and other electronic gear. It operates on 110-volt current or flashlight batteries.

•

Meters that are designed to measure electricity with 50,000 times the sensitivity of conventional direct-deflection units are on the market. They are being produced by the Industrial Controls Div. of Manning, Maxwell & Moore, Inc., of Stratford, Conn. The new line of millivoltmeters and microammeters produces an ink record on strip charts or tabulator charts.

•

A boxcar for pulpwood that can be loaded in several different ways has been developed by Canadian National Ry. engineers. The car opens from the top, has four sliding doors along each side, and doors in the bottom for unloading logs by gravity. It is said to carry 70% more pulpwood than existing cars and to operate safely at higher speeds.

Based on a case history in Crane's files

"we felt we were skating on THIN ICE"

"If you've had trouble with leaky valves, you know what a headache they can give you.

"Our problem was valve leakage in light oil lines. As a major manufacturer of baby products, our high sanitation standards were at stake. Expensive oil was being wasted and slippery floors threatened worker safety. Constant servicing of the valves was necessary, even with repacking every 4 to 8 weeks. It was like skating on thin ice—both hazard-wise and cost-wise.

"How did we stop it? By installing Crane No. 1610 Packless Diaphragm Valves.

"Today—4 years later—these Crane Valves remain absolutely tight. With their sealed bonnet, they can't leak around the stem. We haven't had a nickel's worth of maintenance on them. And that goes for every Crane Diaphragm Valve we've installed."

* * *

Many features make Crane Diaphragm Valves highly useful for wide application in your plant. They're typical of the broader selection that's yours . . . and the advanced design and maintenance-saving quality you get in Crane valves and fittings for all piping services.

CRANE VALVES & FITTINGS

PIPE • KITCHENS • PLUMBING • HEATING

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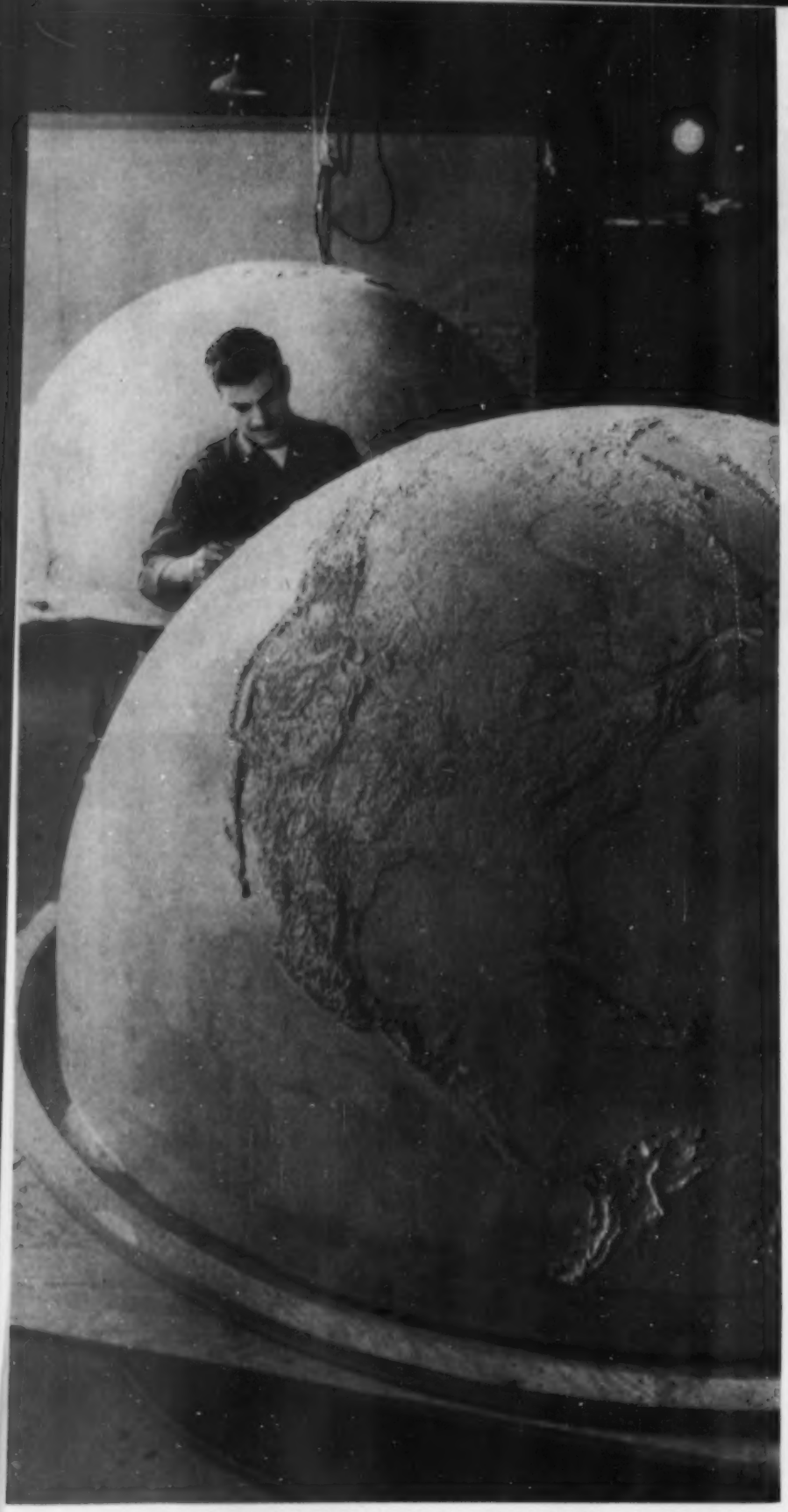
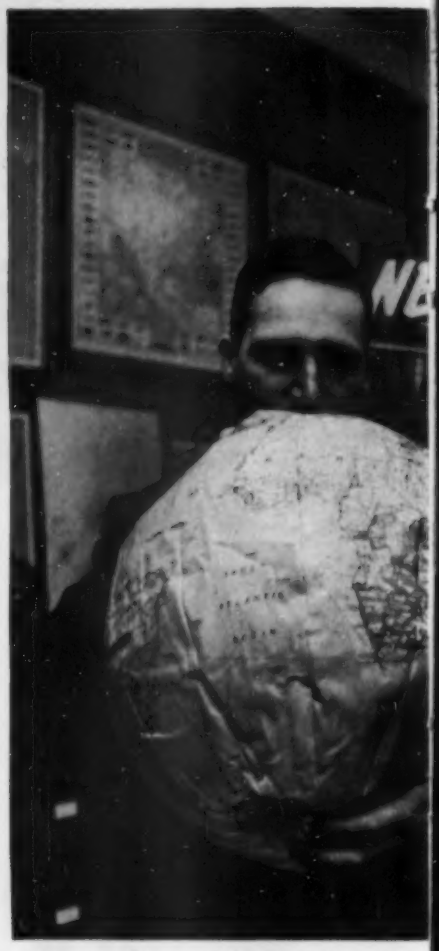


$5,000 Geo-Physical's 6-ft. globe (above) carries the fanciest price tag of the new plastic relief worlds, now the hottest item in the map-making industry.

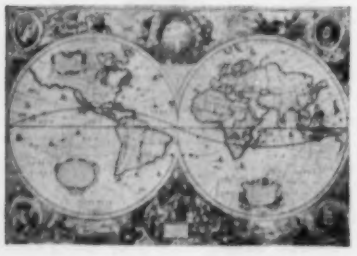


$19.95 Hammond is introducing an 18-in. vinyl globe that inflates.

Map Trade

Any day now, you'll be able to choose the world that suits you best.

Ever since World War II, map makers have been buzzing with ideas for remaking the face of the earth. Already there are a host of new shapes and media (pictures) that bear little resemblance to the world most Americans met in high school. These globes and charts are made of new materials



Perserverance and a good set of lungs can produce the finished model shown (right).

$2 Gabriel Toys has a do-it-yourself globe kit for children, one of the map industry's best customers. Bulging classrooms are helping this end of market.

$47.50 Aero Service is bringing out a 62x41-in. vinyl relief map in colors. It will weigh only 2 lb., compared with 200 lb. for a plaster model.

Puts New Worlds on the Market

—rubber, vinyl, lucite. They are accurate and decorative—two aims chart makers have had, at least since 1630, when the antique map (left) was made. But they have a new dimension—believability. Air travel has brought a new awareness of how the earth looks, and maps are having to conform more to people's notions of actual land colors and forms.

• **King-Size**—Riding this tide of believable maps is a new six-foot rubber relief globe by Geo-Physical Maps, Inc. It has all the new-look features in maps. It is handsome, conceived and designed by New York artists Sam Berman and Kenneth Fagg. It was plotted by Dr. Erwin Raisz, Harvard authority on land forms. It is durable and versatile, made of Texture-Flex, a rubber-like substance developed by A. A. Ostrander, an ex-CBS art director, for reproducing textures in stage, TV, and window display sets. Washable, deflatable, and light—85 lb.—it appeals both to the sight and touch. Drawback is the price: $5,000.

• **Mapping the Boom**—Even as they rushed to slake the new map thirst, the map makers were carrying their product into new fields. Map makers have laid out the line of march for just about every bandwagon that has rolled in our postwar boom. Aerial mappers flew ahead of the oil geologists. Business maps taught some of the biggest manufacturers to look before they leaped for new sales records. Diaper service trucks were routed on city street maps.

Take an inventory of some of the things we have more of—autos, highways, schoolchildren, suburbs, homes, airline miles—and you see where the map industry has teamed up with a growth economy.

World War II, which made every existing atlas obsolete, opened new worlds to the map-making industry. War service had carried millions of people billions of miles. Fatter postwar payrolls yielded the map dollars that let the travel-conscious veterans retrace their GI tours, show the kids where they had been, and take atlas tours of places they had missed.

• **Spaceman's View**—Up to this time, relief globes have been hand-made in plaster or plastic. Geo-Physical claims that its 6-ft. job will be the first of the machine-cast relief globes, although other companies say they have machine-cast globes in the planning stage. Geo-Physical's globe will be machine-cast in blue Texture-Flex, but the land forms will be hand-painted in lifelike, air-view colors. No cities, political boundaries, or grids will appear, unless or-

THE FINISHING TOUCH

by A. B. Hoefer
Vice President
F. B. STEVENS, INC.

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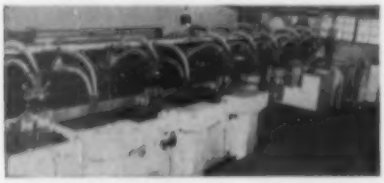

A typical Stevens Automatic used for anodizing

A trend is developing. Volume of Stevens anodizing equipment sold in 1955 was nearly double the volume for the two preceding years. At the same time, sales of Stevens compositions used in buffing and polishing aluminum were showing a 50% increase.

Your aluminum parts *can be* bright anodized and finished to compare favorably with the fine finish of chrome plate. In addition, aluminum can be dyed, resulting in nonfading colored finishes.

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dered. Every detail of the globe is aimed at giving a vivid, man-in-space impression of the world.

National Broadcasting Co. and Look magazine are the first customers. Geo-Physical hopes to sell others to airlines, shipping companies, and other business users. And of course there is an obvious educational use.

• **War Baby**—Plastic relief mapping got its start in World War II. Aero Service Corp., photogrammetric engineers, worked closely with the Air Force on relief mapping during the war. Educators acquainted with Aero's wartime work urged the company to make vinyl relief maps for classroom use. After the war, Aero started with a set of 12 geological land forms in collaboration with the Geological Society of America. Then came a 40 x 65-in. United States relief map in 11 colors, selling for $45. It is now in its fifth edition.

Impressed with the sales, Aero continued to add to its list of vinyl relief maps. This spring, it will introduce a 62 x 41-in. world relief map in nine colors. It will weigh 2 lb., as compared with 200 lb. for an equivalent plaster model, and will retail for $47.50.

Aero is also launching what it calls its boardroom model. It will be a king-size 7 x 12-ft. vinyl world map in hand-painted naturalistic colors for $3,000. Aero also has a relief globe, hand-made in a plastic material over a metal shell, that sells for $2,500.

• **The Field**—Not all the new-look globes and maps carry such fancy price tags, however. Geo-Physical plans to market a 12-in. replica of its big globe for about $15. Aero Service has cheaper versions of its vinyl maps. American Map Co. is getting out a 50 x 38-in. color map to retail at 50¢. C. S. Hammond & Co. is introducing an 18-in. vinyl globe that inflates (picture, page 97). Farquahar has a lucite globe in various sizes and prices ranging from $7.50 to $250. Both Rand McNally and Replogle Globes are bringing out globes printed by a process that gives a 3-D effect to terrain maps.

• **Backers**—Part of the push behind the rush to put new world models on the retail counter probably stems from the upcoming International Geophysical Year, 1957-58, and its most spectacular event, the launching of the earth satellite (BW—Jan.22'55,p154). Map makers, in a way, are giving the public a preview of a satellite-eye view of the earth.

A more down-to-earth reason is that the map makers are also trying to please some of their best customers—children. Children have always been map buffs. And, now that there are more of them than ever, map makers find that maps-for-children is one of their fastest growing lines.

Children have been helping sales in a lot of other ways. Educational uses have multiplied as classrooms bulged. Most map makers sell their products to the textbook publishers for insertion in geographies and other texts. More classrooms mean more wall maps. Special atlases for children also have been snaring more dollars. C. S. Hammond & Co., for instance, found the sales of its new nature atlas running way ahead of expectation.

Adults also are finding more maps and atlases that cater to special interests. More and more road and travel atlases are being offered. And there are more sports maps featuring sports areas and how to get to them by highway.

• **Autos Help**—Booming auto sales also have added to the map business. Rand McNally is the only general map publisher in road maps. Two specialists—General Drafting and H. M. Gousha—make most of the filling station maps. Shell says it alone gave out 10-million maps last year. The American Automobile Assn. passed out some 72-million strip maps—covering about a day's drive—plus another 7-million state, region, and other maps last year.

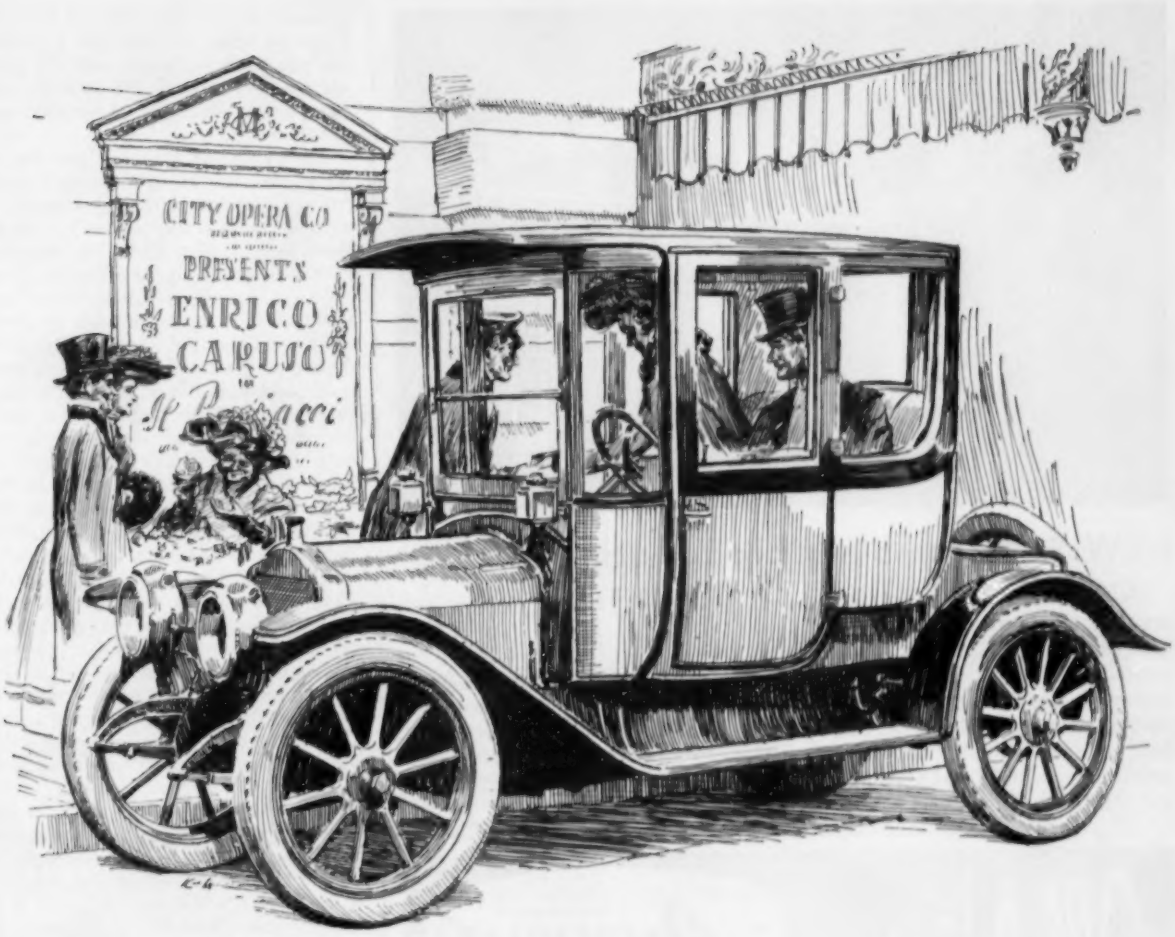
Business, itself, has been a big and growing customer for the map makers in the postwar years. Companies bought maps as they started to reorganize their manufacturing, distribution, and sales territories after the war. Most of them found it paid off and have gone right on buying maps. American Map Co., one of the biggest commercial map makers, thinks maps perform a unique function for the businessman. They tell him at a glance not so much where he is but, even more important, where he isn't.

Businesses are also placing orders with map companies for 500,000 maps or atlases at a clip to be used as premiums. With the new postwar interest in maps, this has become one of the map makers' most important income sources. One map maker says he now sells more atlases as premiums than he does in map and book stores.

• **Specialists**—Many industries have found a growing number of specialist mappers to serve their individual needs. Rand McNally, for instance, got into maps through printing for the railroads and still prints about 5-million train schedules a year and most of the tickets for rail, air, and bus.

Sanborn Map Co. has been a specialist in fire insurance maps for years (BW—Nov.15'52,p96). Aero Service Corp. and Fairchild Aerial Survey Co. have put such mapping tools as the magnetometer, the scintillation counter, and the electromagnetic detector at the command of the postwar hunters for oil, metals, and minerals (BW—Feb.20 '54,p102).

Airline flight maps are a specialty of



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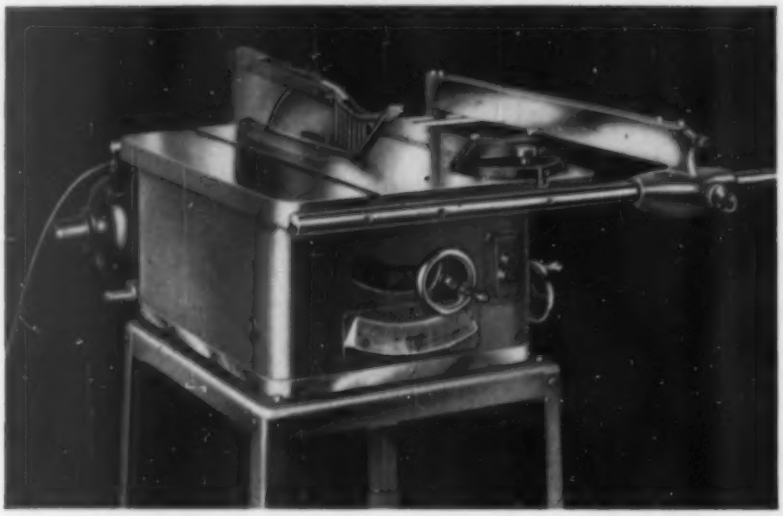

NEW SAW combines big capacity, low cost

Delta, the world's leading circular saw manufacturer, has introduced a new bench saw which combines the capacity of a rugged 10" tilting arbor saw with the economy of most 8" models. The new Delta 10" Bench Saw is designed to fill several specific needs: as an economical "second saw" for crating and maintenance departments, woodworking shops, and school shops; as an easy-to-move all purpose builder's saw both on the job and in the shop; and for the home shops of advanced woodworking hobbyists. For details, write: Delta Power Tool Division, Rockwell Manufacturing Co., 540BN. Lexington Ave., Pittsburgh 8, Pa.

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Jeppesen & Co., founded by Elrey B. Jeppesen while he was still a United Airlines pilot. Jeppesen sells its Jepco maps to the airlines, the military, and the growing numbers of business and private pilots.

• **Hobby**—Along with the growing interest and use of contemporary maps has also come an increasing demand for antique maps. For instance, Argosy Book Store in New York City expanded its old map department about five years ago and has been selling more and more antique maps through a direct mail catalogue and special exhibits in department stores all across the country.

• **Volume**—Since the industry is comprised mostly of family-owned businesses, it's hard to get over-all figures on dollar volume. Published figures of Rand McNally—which claims to be the biggest commercial map maker in the world—show sales of about $20-million for last year. But maps are only about one-third of the company's business. This would indicate that over-all—aside from government, nonprofit geographical societies, and the highly specialized aerial mappers—the map industry is doing a business of close to $25-million a year. Small beside autos and steel, this still represents quite a growth from the less than $10-million of prewar years.

• **Biggest**—Uncle Sam, however, is the biggest maker and user of maps in the world. About 90% of the information that the commercial map makers use is part of the public domain, and most of it was put there by one of the 17 federal agencies that work on map-making projects. The federal maps that the commercial mappers rely on most heavily are the topographic maps turned out by the Geological Survey of the Interior Dept. These show all the features of the surface of the earth, including the man-made features such as highways, bridges, railroads, cities, even some buildings. They cost the department about $100 per sq. mi.

The government currently spends about $150-million a year on its map-making projects—about twice as much as in 1950. Even so, only about 42% of the U. S. is mapped on an up-to-date basis.

• **"Piracy"**—Since the commercial mappers all use basically the same source information and materials, the cry of piracy is common in the trade. Glaring mistakes perpetuated through 17th and 18th Century maps give evidence of liberal borrowing.

To this day, map makers check their rivals' products for signs of copying. Many put deliberate minor errors in their own maps, to trip up the copycat. Hagstrom Co., for instance, puts an anagram of its name plus some other distinctive markings on every map it publishes, to help protect its copyright in the courts. **END**

How to produce extra sales effort

If your crisis is king-size...

A fabulous vacation in Paris or Palm Springs, in Havana or Hawaii will call forth sales efforts that must be seen to be believed. Today's top prize, air travel, is completely flexible; it brings your men home sooner; it keeps your group in close, idea-stimulating contact. And, your winners enjoy preferred-guest treatment in any part of the world when you deal with Cappel, MacDonald and its associates.

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SALES management is a "crisis" business. Any day now, competition may break a "hot" new feature or go gunning for your best accounts . . . sales may slump for no obvious reason . . . management may decide to crack a new market or launch a new product. You may face a situation where no ordinary effort will do, where your department must break every record!

When the chips are down, call on Cappel, MacDonald!

A crisis is no time to double your hours and halve your efficiency . . . or pull men off the routine work that whips most problems while they're small.

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C-M provides the plan, the incentive, the promotion!

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4,000 clients a year use C-M incentive plans!

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SAVE TIME, SAVE MONEY, USE...

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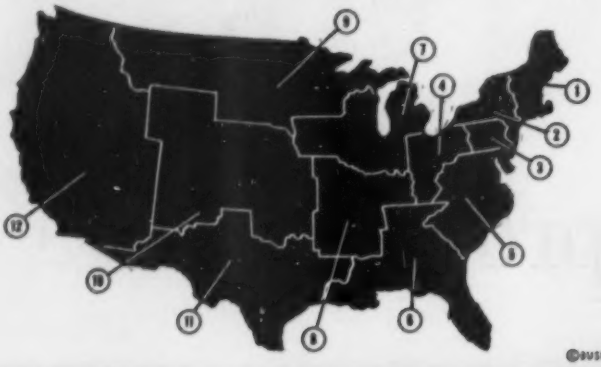
The Income Pattern:
Business Week's Regional Income Indexes

U.S. Incomes: Up 7.2% From Last Year



Federal Reserve District	% Change vs. year ago	The Indexes Nov. 1955	Oct. 1955	Nov. 1954
1. Boston	+4.5%	273.1	266.6	261.3
2. New York	+3.9%	285.3	284.2	274.7
3. Philadelphia	+7.8%	283.4	281.6	262.9
4. Cleveland	+12.0%	331.4	331.5	295.9
5. Richmond	+8.2%	348.6	344.6	322.3
6. Atlanta	+9.4%	413.8	415.1	378.2
7. Chicago	+8.9%	334.0	329.8	306.6
8. St. Louis	+6.0%	313.3	310.4	295.7
9. Minneapolis	+2.9%	322.9	325.8	313.8
10. Kansas City	+4.0%	386.2	384.2	371.4
11. Dallas	+7.2%	446.4	445.1	416.5
12. San Francisco	+8.5%	369.0	365.3	340.2
Nation	+7.2%	332.1	329.8	309.7

1941 = 100; adjusted for seasonal. November figures preliminary; October revised.

Last of a String of Leaps

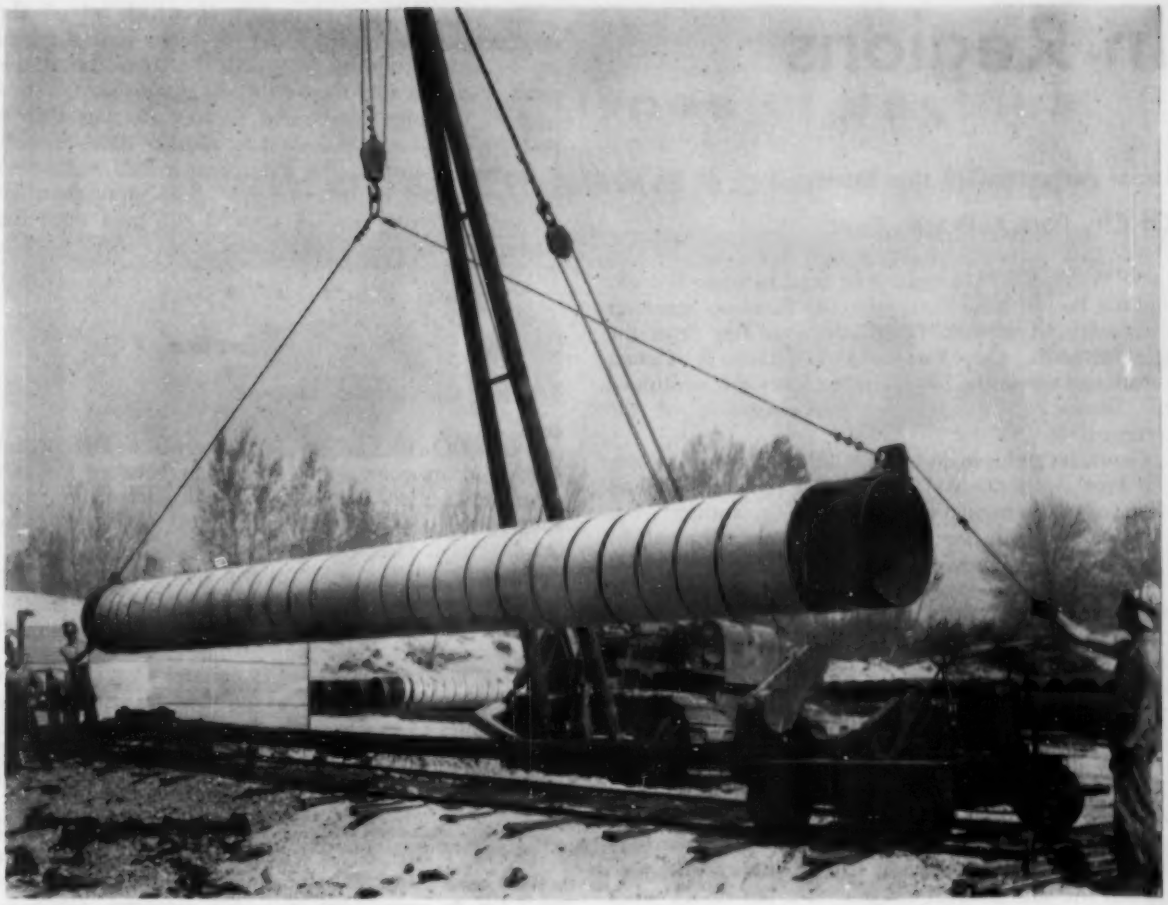
Massive recovery keeps going in Cleveland—as you can see from the 12% year-to-year gain in the area's incomes chalked up in November. With that gain, Cleveland leads the nation. BUSINESS WEEK's Composite of Regional Incomes Indexes shows that U.S. incomes in November, 1955, stood 7.2% above November, 1954. The breakdown shows that individual gains ranged from Minneapolis' 2.9% to Cleveland's 12%.

The reason for the big jump in Cleveland is, of course, that back in November, 1954, the area was still not completely out of the 1953-54 slump, which had hit it harder than many other areas. This same factor has been responsible for the long string of spectacular income gains for the nation as a whole. November's 7.2% year-to-year rise may be among the last of this group of large gains in U.S. incomes. From now on, the year-to-year comparison will be made between two almost equally good business periods.

• **Small Declines**—Month-to-month figures show that from October to November last year, U.S. incomes rose 0.7%. Declines came in only two of the 12 regions—Minneapolis and Atlanta—and in each case the fall was less than 1%.

Since mid-1955, incomes failed to move up in only two regions. In Minneapolis, they fell 1.7% from June to November; in Kansas City, they were down 0.2% in the same period.

In two other regions—Atlanta and Dallas—incomes reached a peak after mid-year, and they have been standing just below those peaks for the last few months. **END**



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This 30-foot section of pipe has been coated, wrapped, and is ready for service. It will take its place in the vast underground pipeline network that moves a greater volume than do trucks, railroads, ships and planes, combined.

It will become part of a great subterranean system that is vital to America's everyday living.

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City.....*Zone*.....*State*.....

In Regions

• • •

Local Airports Get the Brunt Of City-Port Authority Feud

NEW YORK—The years-long feud between the city and the Port of New York Authority flared up again last week with all of its old heat. At issue this time: the local airports. City Controller Lawrence E. Gerosa threatened to sue the bi-state port agency if it continued to "break its promises" on modernization of the terminals.

Gerosa let go his main blasts at Idlewild Airport, where the Port Authority is now at work on a $60-million terminal city. Originally, Gerosa said, the authority was to have replaced the present temporary terminal by June, 1954. That was what was called for in the 1947 contract turning over operation of the airport to the authority. Gerosa then accused the authority of continuing to drag its feet even though it has finally started work. And he complained that this is costing the city money in reduced rental fees.

Earlier, Mayor Robert F. Wagner had called the city's airports disgraceful, though he later modified the word to inadequate. The Port Authority's reply has been that the main International Building at Idlewild is moving ahead on schedule and that it expects the building, along with two terminals for individual airlines, to be ready by June, 1957. But it says it has no control over how quickly the individual airlines choose to put up the other five buildings in the project.

Meanwhile, on another sector—the proposed Manhattan heliport—the city lost ground to the authority. The issue here has been what type of landing field to build at 30th Street and the Hudson River. The authority wants a simple strip running along the river. The city wants a $500,000 heliport on the roof of a proposed freight terminal. It has contended that the strip plan is unsafe.

Last week, in a letter to the Port Authority, the Civil Aeronautics Administration said it considered the strip plan perfectly safe.

• • •

Columbus Zoning Referendum Comes After Ford Has Changed Its Mind

COLUMBUS, OHIO—It's going to be up to the voters—at a May 8 referendum—to decide whether to rezone a 404-acre tract on the city's far north side for industrial use. But as far as Ford Motor Co. is concerned, the issue seems to be strictly academic now.

Ford had wanted the site for a $44-million steering gear plant that would have employed about 3,000 people. **Its plans struck a snag, though, when the City Council in December voted 4-to-3 against rezoning the site** (BW—Dec.24'55,p102). Main reason for the turndown: the protests of north side residents who were against bringing any heavy industry into the area.

The council later reversed itself, which set off the now-successful campaign to let the voters have the final say on what should be done with the land. But at this point, Ford has told the north side group that the company is no longer interested in the site and that it probably will locate the plant in another state—possibly Indiana. Meanwhile, the Pennsylvania RR, which first interested Ford in the site, has spent more than $1-million in buying up 325 acres of the tract since the referendum move got under way.

• • •

Deluxe Seaplane Taxi Service To Link Cleveland, Detroit

TOLEDO—By mid-April, businessmen in Detroit and Cleveland are going to be able to fly between the two cities—and be within a 10-minute cab ride of the downtown districts when they land. Cost of the trip, by seaplane taxi: $14, plus tax, each way.

Geared to a 55-minute air trip across Lake Erie, the new service will be operated by Taxi Air Group, Inc., a company headed by Edward F. Knight, one of Toledo's top industrialists and a longtime air enthusiast.

While flight time is about 15 minutes longer than that of the commercial airlines—and fare almost double—TAG figures to save executives an hour or more on each end by eliminating airport-to-downtown trips. TAG planes will use seaplane bases in the Detroit River and the Lakefront Airport in downtown Cleveland.

Knight, who feels that "if time is money, then TAG is the buy," decided to set up the deluxe service after a mail survey of 2,800 companies in the Detroit-Cleveland-Toledo area. Out of a 16% response, 340 companies indicated that an air taxi service would be of definite value to them. Knight has already bought two seaplanes, at a cost of $150,000, from De Havilland Aircraft of Canada, Ltd.

• • •

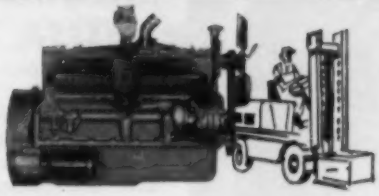
Georgia's Tougher Libel Law Seen as Attempt to Curb Press

ATLANTA—Gov. Marvin Griffin last week shoved through the legislature a new libel law—one that his opponents have blasted as an out-and-out attempt at intimidation of the press.

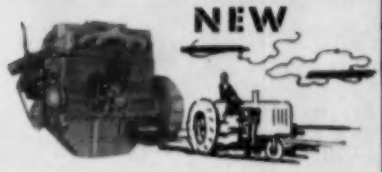
Griffin's forces contend the law is aimed chiefly at strengthening Georgia's present libel statute. The new provisions make it possible to sue a magazine or newspaper in any county where the publication has 50 or more subscribers, provided that there are 10 such counties in the state.

To bring suit, a person doesn't have to be a resident of the county where he files the action. And that, say opponents, adds up to just one thing—assurance of a friendly court and jury if the state wishes to push claims against Georgia's larger dailies, particularly the Atlanta Constitution and the Atlanta Journal. **Both of these papers, controlled by onetime Democratic Presidential nominee James M. Cox, have been plugging away at Griffin since the 1954 elections.**

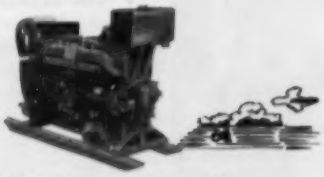
NOW . . . all types of engines
from one dependable source



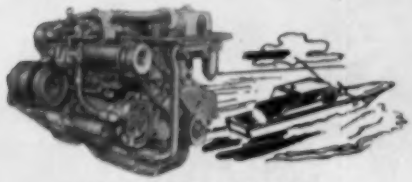
L-HEAD GASOLINE — Compact and especially adaptable for installations where space is limited.



DD-SERIES — Direct injection Diesel. 12 models INTERCHANGEABLE with GO-Series gasoline engines.

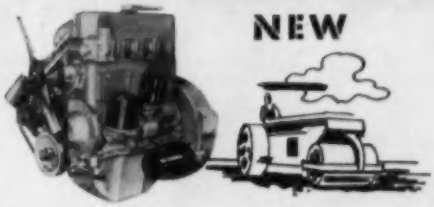


L.P.G. NATURAL GAS or KEROSENE engines are available in 40 models also popular sizes for irrigation service.

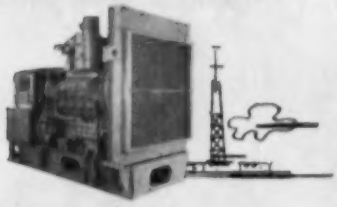


MARINE DIESEL ENGINES — Sizes from 75 to 500 H.P. for workboats and pleasure craft.

PRODUCTS OF
HERCULES engine manufacturing specialists



GO-SERIES — Gasoline Overhead valve engines. Available in 12 models.



SUPERCHARGED DIESELS — Maximum power for special installations such as micro-wave generator sets for coast-to-coast T.V.

TURBULENCE CHAMBER DIESELS — 32 models to 500 H.P. in 1, 2, 4, 6 and 8 cylinders.

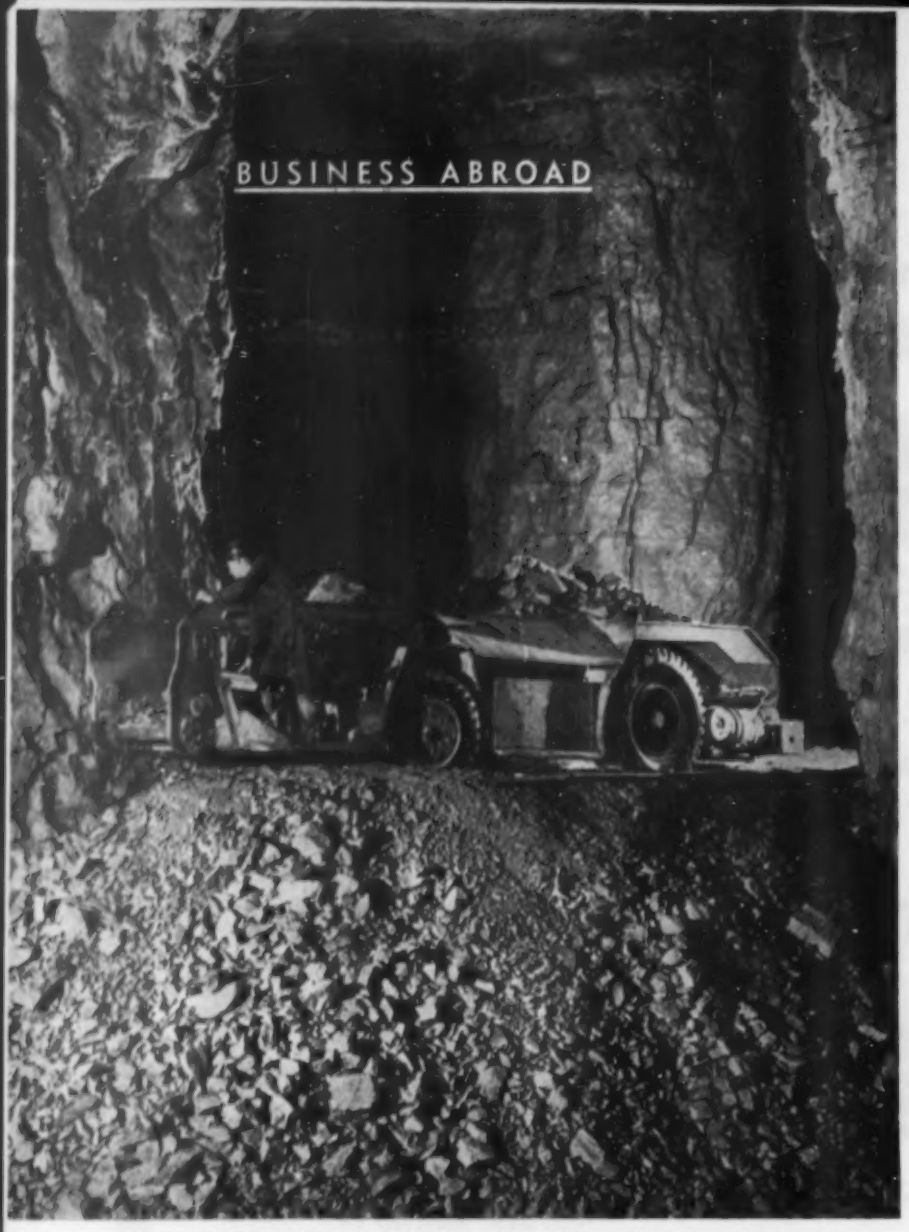
POWER UNITS — Open, closed or base type units are available in most models of gasoline and diesel engines.

NOW . . . with the addition of the G O series (Gasoline Overhead valve) and the D D series (Direct injection Diesels), Hercules Motors Corporation offers a most extensive line of piston type engine to meet the varied needs of modern industry.

In addition to the many types of engines illustrated above, it is the policy of Hercules Motors Corporation to tailor engines to the special requirements of their manufacturing customers. Special versions of regular models — for example, "pancake" or flat engines — are often produced for particular applications.

Whatever your power requirements may be, HERCULES — Engine Manufacturing Specialists Since 1915 — will be happy to work with you and solve your power problems. For more information on the new G O and D D series — or any type of Hercules Engine from 3 to 500 H.P. contact the factory.

HERCULES MOTORS CORPORATION
CANTON 2, OHIO



IN FRANCE, Joy Mfg. Co.'s electrically driven dolly collects the mined iron ore.

Joy Tunnels Deeper Into Overseas Market

One day in January, Harold R. Wheeler, Joy Mfg. Co.'s vice-president in charge of international operations, packed up and moved his headquarters from New York to Paris.

It isn't much of a change for Wheeler. He'll still be commuting between the company's New York export office, its Pittsburgh headquarters, and its subsidiaries in foreign countries. What Wheeler's change of address does reflect is the new attitude of Joy's top management. John Lawrence, who last month became the new president, has definite ideas about what should be done with Joy's overseas operations. "We've been flying by the seat of our pants," he says, meaning that Joy's overseas business has grown haphazardly, and that in the period of growth that lies ahead its operations will have to be streamlined.

• **The Record**—Lawrence isn't criticizing the growth of Joy's overseas sales under his predecessor J. D. A. Morrow, who last month moved up to chairman. Last year, the company—which manufactures mostly heavy mining machinery—did $20-million of its $92-million in sales abroad. That $20-million was just double what the company grossed in foreign countries in 1951, and it represented 24% of total sales in spite of the fact that last year was a boom one for Joy domestically. In addition, more than $14-million of last year's foreign sales were transacted through overseas subsidiaries that Joy has set up in the postwar period.

Despite this impressive record, Lawrence doesn't think his company is making enough profit on its overseas sales business. That's why Joy moved Wheeler to Paris, where he personally can supervise the operation. Lawrence is sure that he and Wheeler can introduce more efficiency and thus make significant gains in Joy's profit-making capacity.

• **New Markets**—Lawrence is optimistic about the long-range outlook for his company abroad. For one thing, he hopes to continue to cash in on the trend toward mechanization of Europe's coal mines. He also thinks Joy has a good chance to meet its foreign and domestic competition in such diverse new fields as contract drilling and petroleum engineering equipment on better than even terms. In the latter field particularly, Joy will push its advantage in being able to manufacture—and therefore to sell—inside the sterling and franc areas. In the fast growing economies of South Africa and Australia, Joy hopes to ride the crest of extensive mineral development. That also goes for the underdeveloped sections of the world—India, for example, is a good market for Joy.

• **Ambitious**—This all sounds pretty ambitious when you consider that Joy is

IN BRITAIN, a "continuous miner"—made by Joy—arrives at a colliery.

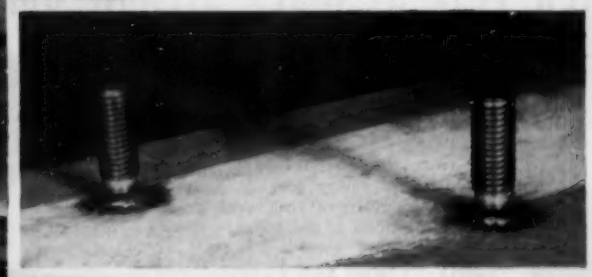
How a simple stud strengthens Morgan cranes!

• *Stud welding* of bridge cover plates makes Morgan cranes structurally stronger . . . prevents corrosion inside the girder due to dirt and moisture leaking through holes in the plate . . . stops dangerous scale formation.

Former fabrication method of punching holes in the top plate and fastening rails with T-head bolts weakens the girder. With Morgan's method, stud welds are actually stronger than the parent metal.

Stud welding is still another example of the advanced design and construction features that make Morgan cranes the best in the business.

Performance records prove that Morgan cranes cost less to operate and maintain. Let our representative show you how to save the most by buying the best . . . Morgan!



By welding studs to cover plates, rails can be fastened to crane bridge without punching holes for T-head bolts . . . structural strength of the plate is protected. Static tension, torsion and impact tension tests prove the weld is stronger than the stud or parent metal.

The Morgan Engineering Company, founded in 1868, manufactures overhead electric traveling cranes, gantry cranes, charging machines, plate mills, blooming mills, structural mills, shears, saws, and auxiliary equipment.

THE MORGAN ENGINEERING CO. *Alliance, Ohio*

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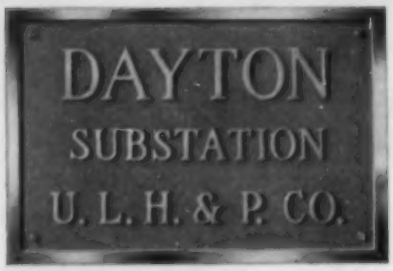

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The *Gestetner* is an entirely new, scientific concept of duplicating. Printer's style paste-ink, oscillating rollers, dual cylinders (*like a printing press*), silk screen ink distribution, automatic controls . . . all combine to yield results astonishingly superior to anything heretofore thought possible with the simple stencil duplicating process. Economies are tremendous because so much of your work going to outside services can now be done in the office . . . by office help.

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Simply snap the ink tube into position. That's all. Automatic controls take over. No pads, no brushes, no cans, no leakages.

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POLISH postage stamp features copy of a Joy machine, to symbolize mining hopes.

a relative newcomer in foreign fields. Its overseas activities began in 1946, when the company merged with Sullivan Machinery Co., whose products paralleled Joy's. It had been in export for many years in a small way, with companies operating in Britain, France, Belgium, South Africa, Australia.

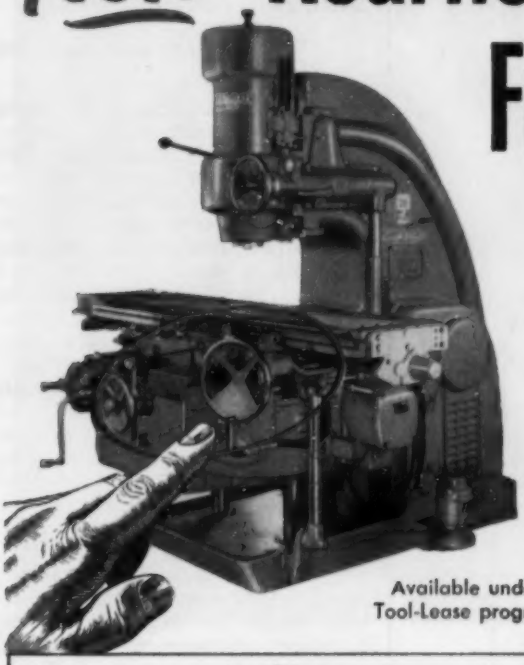
Faced with the choice of liquidating Sullivan's overseas holdings or carrying them on, Joy chose the latter course. But as company officials admit now, it was a matter of faith, since none of the board had foreign business experience. The decision was based on the logic that there was bound to be a huge trend toward development of mineral resources all over the world in the post-war period.

Today, Joy sells 72 countries, with subsidiaries in nine—and has local manufacturing in Britain, France, South Africa, and soon in Australia. These overseas companies represent an investment with a book value of probably less than $5-million. Even so, last year's overseas manufacturing operations—with a boost from U.S. components, which produced important components—made and sold more than $10-million. Better than $4-million was made in the U.S. and sold by the overseas companies. Add $5-million that New York export sold direct, and you get a picture of Joy's overseas business. Even the sales made directly by New York must in part, at least, be charged up to the prestige that overseas companies have built for Joy abroad.

• **Robbing Peter—As** in the case of most U.S. companies that manufacture abroad, there's some jealousy inside Joy management as to who gets the credit for selling what. But to Lawrence, there should be no problem of corporate jealousy. He wants a firm answer to the question: Is overseas manufacture just a question of robbing Peter to pay Paul? That is, are the foreign manufacturing subsidiaries selling customers who normally would buy from New York?

Lawrence believes that the long-term answer is that overseas manufacture can increase New York exports. Com-

Now Kearney & Trecker has Front-Mounted *(convenience-engineered)* Handwheel



Available under Tool-Lease program

Standard equipment on new TF Series milling machines — front-mounted for faster table settings ... positioned to prevent errors

THE front-mounted table handwheel is a standard feature on all Kearney & Trecker new TF Series, knee-type milling machines — Plain, Universal and Vertical. Mounted on the right front of the saddle and projecting diagonally, the newly positioned handwheel is a part of Kearney & Trecker's up-front central control grouping.

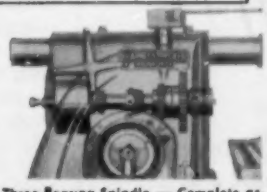
Because the handwheel is ideally located so as to simplify operation of the machine, the operator makes table settings more accurately — in less time and without leaving his normal operating position. It measurably reduces operator fatigue.

In addition, the new TF's give you a combination of more outstanding design and operating features (illustrated at left) than any other knee-type milling machine on the market today. They're available in five sizes — No. 2 to No. 6 from 10hp to 50hp.

For complete specifications, and what these TF's can do for you, see your nearest Kearney & Trecker representative, or write direct to Kearney & Trecker Corp.

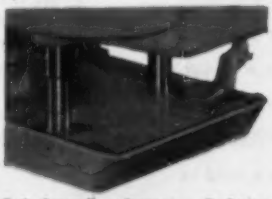
5 more reasons why TF Series milling machines are so easy to operate

Heavier, Wider, One-Piece Knee — The TWIN SCREW arrangement supports the heavier, larger knee. Span and length of ways is increased considerably, providing fuller saddle support . . . lasting accuracy . . . substantial reduction of way and gib wear.



Three-Bearing Spindle — Complete assembly consists of three heavy-duty bearings, flywheel, a train of wide-faced forged steel gears. Rigidity of spindle unit contributes to increased cutter life, better finish and quieter operation.

Double "Vibra-Void" Overarms — Two solid steel bars, mounted completely through column, void vibration at source, afford more rigidity and resistance to deflection than any other type support. Design also greatly simplifies changing of arbors and cutters.



Twin Screw Knee Support — Exclusive double-support arrangement most effectively distributes weight of new machines' much wider, heavier knee, saddle and table. Balanced design increases stability under heaviest loads . . . offers greater resistance to torsional thrust under all cuts.

Massive Column — Solid back, double-box section column is scientifically ribbed throughout to rigidly withstand heaviest cutting forces. Full bearing column face affords maximum support for the knee. Cross-mounted motor assures maximum ventilation, easy access for routine maintenance.

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". . . overseas officials are beginning to feel Lawrence's slide rule . . ."

JOY starts on p. 106

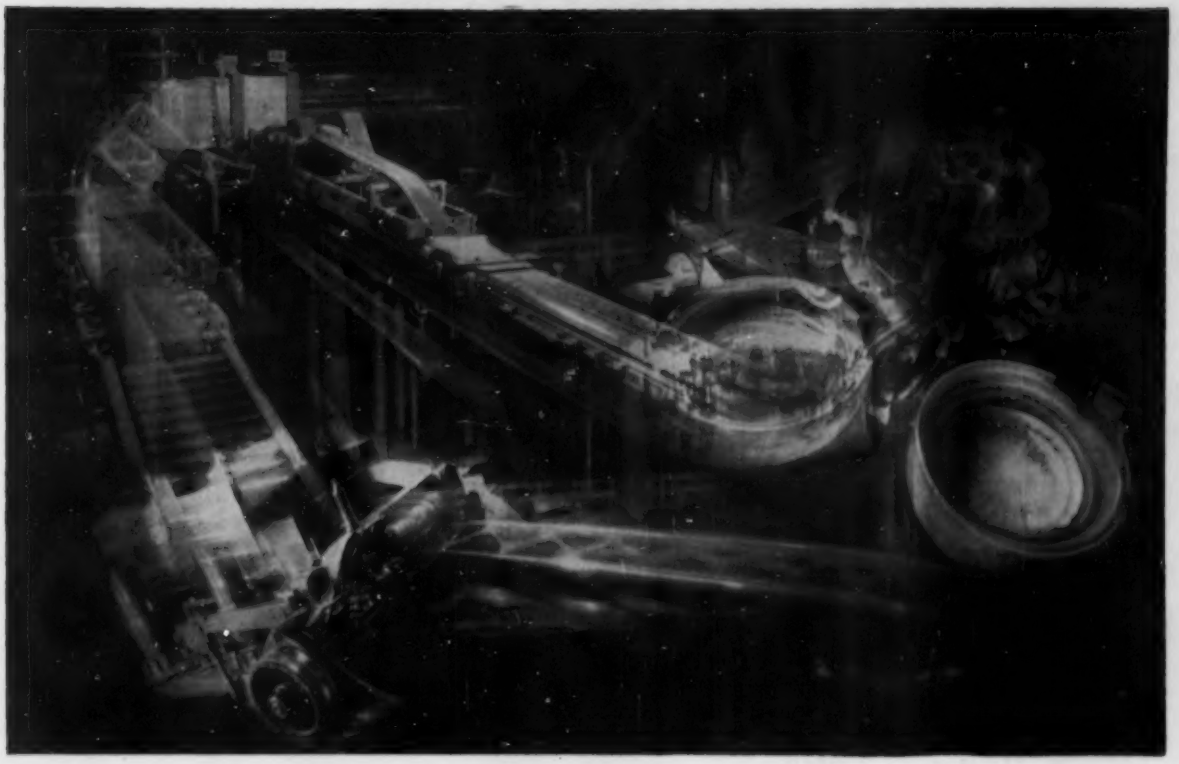
pany officials back him up by offering proof that the countries that manufacture are the best customers for New York exports. But Lawrence wants to be sure he's on the right track, and one of his first moves as president was to institute a system of production and sales analysis. Each month he gets a report on foreign subsidiaries, showing at a glance what the foreign subsidiaries are selling, where, and at what profit.

• **Profit Margin**—This isn't the only problem Lawrence and Wheeler have to wrestle with. In Britain, the company's biggest overseas manufacturing operation and sales leader, the profit margin isn't what Lawrence thinks it should be. He won't give figures, except that it isn't the 10% after U.S. taxes that he thinks his shareholders have a right to expect. That's why overseas officials are beginning to feel Lawrence's crackdown—with a slide rule, not a whip.

To Lawrence, this crackdown is necessary not only to establish stronger financial control, but to enable the companies to coordinate their operations more efficiently. For example, both the French and British companies are exporters—as well as the parent company in the U.S. (The British subsidiary sold about a fourth of its products outside the United Kingdom in 1955.) So the problem of getting the most out of third markets—outside the U.S. and countries where Joy manufactures—means a careful meshing of all the company's activities.

• **Clearinghouse**—It's right here that Wheeler's new office becomes a central clearinghouse, to see that no order is lost through not using each of the company's facilities to the best advantage.

That doesn't mean that Paris, say, will try to move in and boss local operations. Both Wheeler and Morrow are proud of the fact that Joy has organized each company as a national unit headed by a national of the country. Morrow often has had to go to bat before the board of directors to uphold his creed that each national manager should be allowed, within reason, to operate the way business does in his country. This approach means, for example, that the British company took up its government's offer to build it a plant in a depressed area of Scotland in 1949. It also means that the French company can continue to con-



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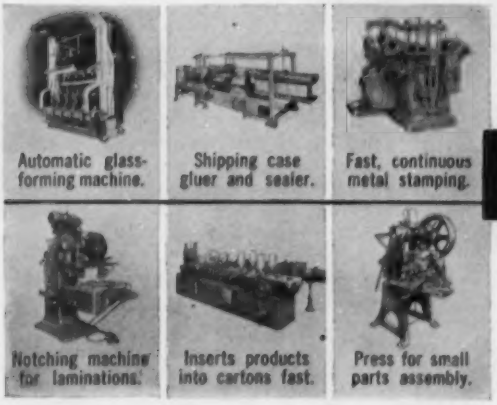
This typical assortment of Emhart Machines (shown compositely) automatically loaded newly-formed jars onto an annealing lehr . . . assembled ball bearings . . . produced mop hinge clasps complete . . . opened flat cartons and positioned them to receive a product.

Each Emhart machine — and we make more than 275 types — rewards the user with the most advanced ideas in applied motion. Take packaging, for example. Acres of shipping room space are being replaced by Emhart packaging equipment measured in terms of square feet. Power presses, built and equipped by an Emhart division, are revolutionizing small parts assembly methods. Other types of presses — high speed dieing machines — are drastically shortening metal stamping production schedules and simplifying parts inventory problems.

In considering automating, mechanizing or modernizing your production or packaging operations, be sure to talk to Emhart. Our experience ranges from complete, fully automatic production lines to single automated machines. *Write for our catalog of over 275 machines — it will give you an idea of our scope.*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A few minutes of your time invested in watching a simple demonstration of a better fastening method may point the way to savings of thousands of dollars in assembly of your products. The Townsend lockbolt provides a quick method of producing tight, rigid fastenings that cannot loosen even under extreme vibration or shock conditions.

We would like to have a Townsend engineer demonstrate to you and others in your organization how these lockbolts combine the advantages of riveting and bolting—eliminate the disadvantages. He will show you that installation is fast—that fewer workers can complete an assembly in less time—you improve your product—achieve a lower installed cost.

You will be able to see why the clamping action, or clinch, of Townsend lockbolts is higher than rivets—is more uniform than bolts and nuts. The demonstration will explain how the lockbolt fills the hole better than other fasteners—makes possible a more rigid joint and provides an effective liquid seal.

Townsend lockbolts are available in steel and aluminum alloy, in 5/16", 1/4", 5/16" and 3/8" diameters, in grip length ranging up to 2", in various head styles.

For a demonstration on how to speed production, get tight, secure, permanent fastening with Townsend lockbolts write on your company letterhead to Townsend Company, P.O. Box 237-A, New Brighton, Pa.

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tract out all its manufacture to two local companies—so far at the best rate of profit of any of the foreign enterprises.

• **Sales Approach**—Also, each company uses its own sales approach. In Britain, the company cashed in on the fact that Wheeler was an adviser to the British Ministry of Fuel & Power during World War II. When the war was over, he was able to talk the nationalized industry's Coal Board into introducing some of Joy's continuous miners (picture, page 106). At present, the British company is working with the Coal Board and Belgian engineers to develop a new coal mining machine particularly adapted to European mining. Also, the British company is trying to develop a line of petroleum equipment products that can be sold to the international oil companies operating in the Middle East—which want to spend sterling rather than dollars wherever possible.

• **Riding the Trend**—Meanwhile, the French company is less interested in coal, more in potash and iron mining (picture, page 106). It owns a Moroccan company that plans to move ahead with the tremendous development that may lie ahead in North Africa and the Sahara. Joy's South African company has developed a new kind of hoist that does well in the gold and uranium field being opened up in Orange Free State.

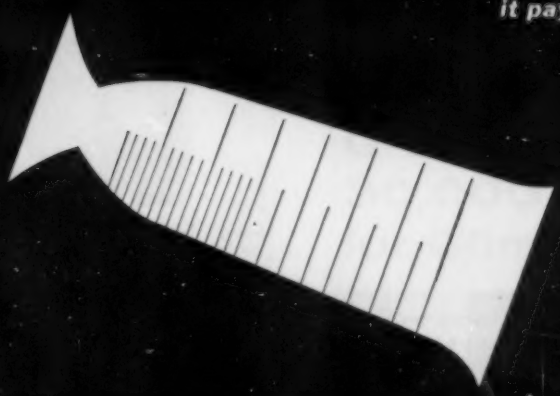
In Australia, Joy has little trouble selling U. S. coal mining equipment, which is suited to the continent's deposits. Now the only problem—exchange—may be surmounted with local manufacture. In India, Joy is looking over the prospects of local manufacture. It already has a good business going both in drill sales and in contract drilling (the U.S. company bought out a Los Angeles drilling rig equipment manufacturer in 1954). In Latin America, an older market for Joy, it's mostly a replacement parts business.

• **Competition**—Joy has less competition than many U. S. companies abroad, because mechanization of mining is almost a U.S. monopoly. Even the Germans haven't been able to compete with Joy for third markets, although Lawrence seems to feel that despite good sales through a licensee in Germany, the company probably has neglected that country and should be manufacturing there.

Even the Communists have paid Joy the compliment of stealing its design: Last year, a Polish postage stamp (picture, page 108) showed a Polish copy of a Joy machine being used to fulfill—at least in theory—the six-year plan for the country's coal industry.

Joy is worrying about what may lie ahead in the way of competition. That's why its research expenditures have been doubled in the past few years. **END**

it pays to plan with General American



SAFE, LEASED WAREHOUSES

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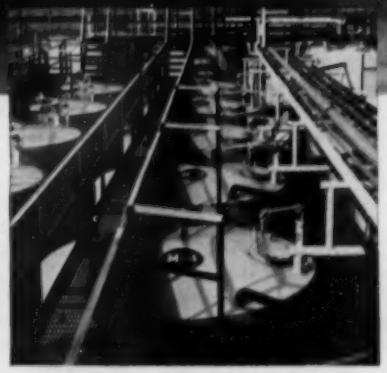

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For Japan's Films, A Hard Choice

Studios in Japan are running at top speed—with two kinds of products.

MODERN Cheap films for voracious home market are 80% of production. The question: Should they be exported to cash in on popularity of . . .

CLASSIC Japan's quality films, notable for color and photography, have won world acclaim. But they can't be mass-produced despite a ready welcome in the West.

Last week Golden Demon, Japan's latest export to the U. S. art-theater circuit, opened at the Guild in New York. To critics, the picture proved again that fine camera work is a Tokyo trademark. More than that, the picture's showing in the U. S. strengthened Japan's claim to a top position in the international film market.

Desire for money is the thematic "golden demon" in this new Japanese release. But money is anything but a devil to Japanese producers, who see a bright future for their industry.

After World War II the industry stumbled along with poor equipment and a massive inferiority complex. Today, in sheer activity and excitement, the industry is rivaling Hollywood. Last year its 5,000 employees produced 422 full-length features for some 4,600 Japanese movie houses. Box-office gross—one third from foreign (mostly U. S.) imports—amounted to $175-million. Japan's six major studios estimate that total export proceeds, $2-million last year, will hit $10-million by 1960.

• **Lowered Bars**—Paradoxically, the industry's growing share of the foreign-film market is the one dark spot ahead. Japanese producers fear that to cash in on recent successes abroad, they will begin exporting run-of-the-mill films—low-budget features with hackneyed plots and routine photography—and thereby hurt their international reputation for quality films.

The Japanese moviegoer, paying no more than 14¢ to 28¢ a show, craves double, triple, even quadruple features. Each major studio has block booking contracts that require the moviemaker to provide one new picture each week. For example, Daiei Motion Picture Co., Ltd. produces 56 full-length features a year, will boost this output 50% in 1956 with the opening of a new studio in Tamagawa, Tokyo suburb. Out of Tokyo come the films with modern settings, some 80% of all films produced by the industry; from Kyoto, ancient capital, the quality films.

How to squeeze quality films, such as Gate of Hell, into a shooting schedule aimed at filling theater screens with multi-feature shows each week, is the industry's dilemma. It is a dilemma Hollywood, hit by TV competition, would happily face. (So far, Japan's TV is too young to worry Tokyo studios.) At present, each major Japanese studio pushes through one cheap picture after another, allocating on an average $50,-

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000 per picture for production and $40,000 for distribution. The studio feels lucky if it finds time for 10 quality films a year, two or three of them good enough for export.

• **Small Beginning**—Six years ago, before the Japanese began winning Oscars at Venice, Cannes, and Berlin, film exports brought in a piddling $238,000—primarily from showings before Japanese nationals in foreign countries. The major studios—Daiei, Shochiku, Toho, Shintoho, Toei, and Nikkatsu—plainly felt that Oriental films with Oriental actors would not appeal to Westerners. This attitude, in part, grew out of the war and the occupation. Japan's rich history should be soft-pedaled, modern problems featured—according to the industry thinking.

In 1951, Daiei half-heartedly submitted Rashomon in the Venice International Film Festival, walked away with the Grand Prix. In December, 1952, Rashomon made its bow in New York. To Japanese and Westerners alike, Rashomon showed that Oriental history could be recreated on an artistic plane.

• **More Theaters**—The post-Korean boom in Japan buttressed this new confidence. There was a rush to build movie houses, to expand film facilities. Despite 530 destroyed during World War II, the number of theaters now exceeds the prewar figure—330 built just during the first six months of 1955. By 1954, the major studios, plus 31 independents, were turning out 330 movies a year.

Western audiences, of course, find a unique, exotic quality in the hazy landscapes, delicate interiors, and stylized acting of Japan's Grade A exports. But the real originality in these films, critics agree, is the subdued use of color photography (though they experiment with their own Fujicolor, the studios still rely on Eastman color) and the expert composition of individual scenes. Westerners who have visited the Japanese studios say the directors and cameramen are steeped in the centuries-old tradition of Oriental painting in which fine brushwork and subdued colors predominate.

Japan is still one of Hollywood's most lucrative markets. The import quota allows 122 U. S. productions a year to enter the country. Many Japanese movie theaters are equipped to show CinemaScope and other big screen films.

Hollywood grouses about import quotas and competition from Japanese studios. Yet a solid Hollywood hit will show at 1,600 of the country's 4,600 theaters. Last year U. S. films grossed $45-million in Japan. While only 18.4% of earnings on U. S. films could be remitted last year, a new agreement, signed two months ago, will release over $11-million in blocked yen over a six-year period—payable in dollars. **END**

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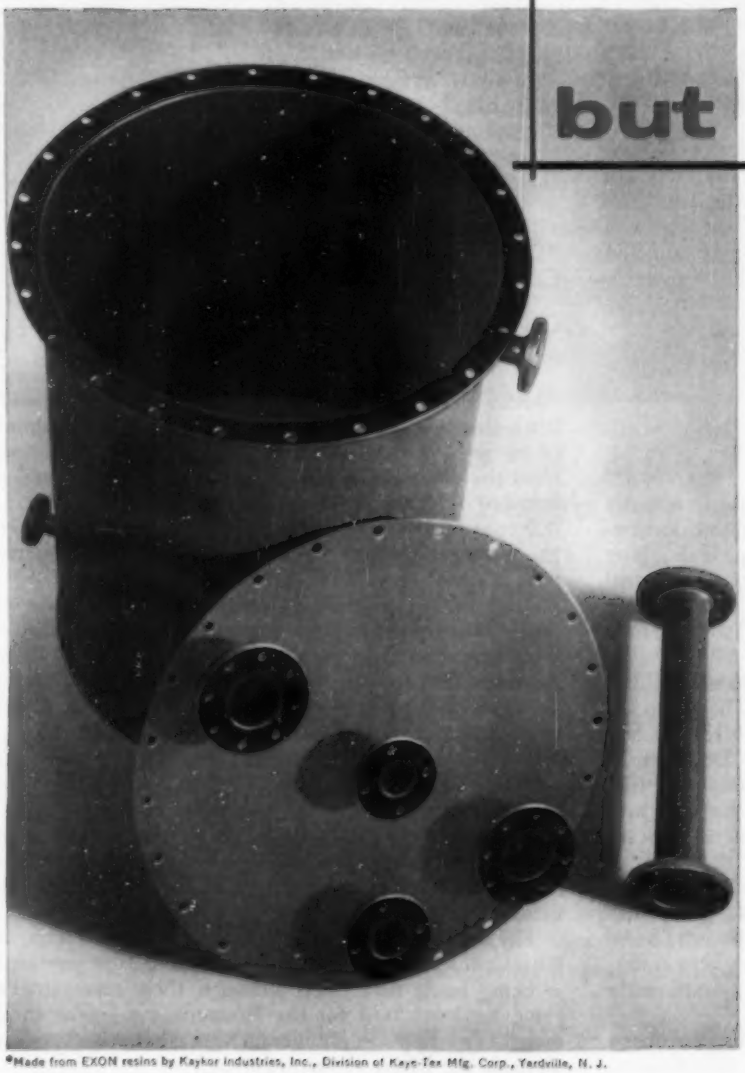

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In Business Abroad

• • •

New Cold-Strip Mill to Ease Germany's Flat Steel Pinch

Next month August Thyssen-Huette AG, one of West Germany's most aggressive steel firms, will be rolling flat steel from a new continuous cold-strip mill at Duisburg-Hamborn in the Ruhr.* The plant is being built, and will be operated for 10 years, under a licensing agreement with Armco International Corp.

This strip mill, and another similar though smaller one that Kloeckner Stahlwerke is planning for Bremen, will plug a big gap in the West German steel industry—improve both its competitive position and that of the German auto makers, who have been hard-put to get body steel.

While the German steel industry was still under Allied wraps, Marshall Plan funds helped France and Britain get far ahead in continuous cold-strip facilities. Even Japan already has two up-to-date mills in operation.

Before World War II, Thyssen had a small, German-built continuous cold-strip mill at Dinslaken. But this was dismantled by the Russians. For its new mill, which handles 66-in.-wide strip and has a capacity of 240,000 tons a year, **Thyssen decided to come to the U. S.**—to Continental Foundry & Machine Co. for the mill itself and to Armco for the engineering construction, and operating knowhow. Armco has virtually completed training of 15 Thyssen steelworkers in cold strip techniques at Middletown, Ohio.

• • •

Plan for Scandinavian Unity Gets Push in Economic Field

That old urge for unity in Europe—which recently got a new lease on life with a proposal for joint development of atomic energy (BW—Dec.24'55,p55)—is rising again in Scandinavia. Last week the Fourth Annual Nordic Council, a grouping of the three Scandinavian states, joined this year by Finland for the first time, took stock of unity possibilities.

The biggest and most ambitious proposal of the Council is for an all-Scandinavian market. The group has been studying it for some time (BW—Feb.12'55,p168). The proposal is for Norway, Sweden, and Denmark to drop tariffs against each other on 70% of imports.

Like all such unity moves, this scheme has run into obstacles. For one thing, Norway, low man on Scandinavia's economic totem pole, is afraid that Danish agricultural produce and Swedish manufactured goods would swamp local industry. So far, the group has agreed on about 45% of the products in intra-Scandinavian trade. But after a heated debate last week, project problems were shelved for study until early 1958.

Even so, the council adjourned the discussions on an optimistic note: The Norwegians have no objections to integration of heavy industry—they haven't much heavy industry, nor have the Danes. **This could lead to big schemes of putting Norwegian hydro-electric power together with Swedish iron ore.** Also, the Norwegians and the other parties including the Finns think progress toward unity is picking up so much momentum that present difficulties may be overcome by 1958.

• • •

British Talk of Cutting Incentives for New Plants

Since World War II the British government has been offering financial help to manufacturers, both British and foreign, who establish plants in "development areas." To attract new industries to these areas, the Board of Trade has (1) built factories for rent and (2) provided cheap services.

Now a parliamentary committee, on the lookout for ways to cut government spending, has recommended that the BOT quit using public money for this purpose. The committee argues that with overfull employment in Britain, and industrial expansion going great guns, there's no need for the program.

Many U. S. firms have used these facilities—especially in Scotland—in establishing or expanding branch plant operations in Britain (BW—Jul.17'54,p120). The government won't ignore this fact when it makes a decision on the committee's recommendation.

• • •

Communist Countries Increase Oil Shipments Through Suez Canal

In the present dither over disturbances in the oil-rich Middle East, figures on the reverse movement of petroleum through the Suez Canal are interesting. **Volume of oil moving from north to south through the Canal from the Communist-bloc countries more than doubled between 1954 and 1955.** The Romanians shipped 353,000 tons in 1955, compared with 192,000 tons in 1954; the Russians shipped 467,000 tons in 1955, compared with 176,000 in 1954.

Most of this oil moved from Communist Europe to Soviet Asian ports, mainly Vladivostok, and some of it went on from these ports to Communist China. The Russians and Romanians also exchanged some oil for Egyptian cotton, and this oil moved through the Canal to Egyptian ports at the south end of the Isthmus.

The Russians move oil through the Canal to the East for three reasons, apparently: (1) They have almost no oil in Siberia; (2) their overburdened transport system in Central Asia can't take the strain of carrying more oil; (3) the Russians so far have no pipeline system—although they are building one in the new Volga oilfields.

The best information indicates that Romania is China's chief supplier, rather than Russia. How payment is being made isn't clear, although there seems to be some tendency now for the Romanians to make their own deals with the Chinese rather than check them through the Moscow clearinghouse.

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The Old "True Money" Gets Back Into Trade

For 6,000 years the world's canny hoarders have been collecting chunks of metal like those you see on this page. Through the last few decades of those 6,000 years, it seemed that canny hoarders were the only people interested in gold currency: Governments kept as far as they could from gold payment deals; peasants filled their mattresses with Doubloons and Napoleons. But suddenly, in the last few years, gold's importance to national governments and international traders is growing again.

In its annual gold review, the Engineering & Mining Journal, a McGraw-Hill publication, last week reported that world gold production continued its postwar rise in 1955. Production, outside the Soviet Union, totaled 27.7-million fine ounces (1.6-million ounces more than in 1954) and was worth about $1-billion.

• **Silent Reds**—The Russians, since 1940, have kept secret their gold production. Fresh estimates, made by Pick's World Currency Report and the German Industrial Institute of Dusseldorf, indicate the Russians are producing about $420-million worth a year. This makes them the world's second biggest gold producer—just behind the Union of South Africa, which last year produced $510-million worth of gold.

A large part of last year's production went into national gold reserves. Engineering & Mining Journal estimates that official monetary reserves, excluding those of the U.S. and Russia but including those of international financial institutions, increased by about $800-million. Of this, some $142-million worth of gold was purchased from the U.S. Franz Pick, the internationally recognized currency expert, thinks the Russians sold $150-million worth of their gold abroad last year.

Whatever the true figure it's clear that well over half of Russia's gold production last year went into Moscow's gold reserve. Pick and the German Industrial Institute estimate that Russian gold stocks are now standing around $7-billion worth. This makes it the world's second biggest gold holder. The U.S. is first with $21.7-billion worth of gold, of which $8-billion is, in a sense, mortgaged—it represents foreign governments' assets in the U.S.

As for the world's monetary gold stock as a whole, Pick estimates it totals about $60-billion, and says $11.5-billion of this is in private gold hoards.

• **Fillips for Gold**—But, though private gold hoards are growing, more and more gold is getting into international trade channels again. Since Aug. 1, 1955, member nations of the European Payments Union have had to make their monthly settlements 75% in gold. This is no small thing. EPU each year accounts for some $50-billion worth of trade—more than 60% of the world's total international trade.

International gold dealing got another fillip with the reopening in 1954 of the London gold market. The U.S. gold price—$35 an ounce—still sets the standard for the world. But London is a better center than New York for governments and private gold dealers to trade in. There, they avoid the high shipping and insurance charges of New York—which come to about 16¢ an ounce—as well as the U.S. Treasury's gold trading service charge of ¼ of 1%. Because of lower-London costs, free market bar gold sells there at about $34.95 an ounce, but costs $35.15 an ounce in New York.

• **Dual Role**—In other trading centers, like Bombay, Warsaw, and Karachi, gold's price can run higher than $50 an ounce. The higher price covers the dealer's shipping and insurance costs—and bribes.

These bribes can be big items now that gold, as a medium of exchange, has a curious Dr. Jekyll-Mr. Hyde existence. Some countries, like France or Italy, allow private citizens to hold and trade in gold within their borders,

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The Dumore Company of Racine, Wisc., manufacturer of automatic drill heads used by the metal-working industry, has always had difficulty in explaining verbally to prospects the many advantages of its equipment. With the launching of a new machine that was not only new to the market but different from anything Dumore had ever marketed before, this problem was magnified. Photographs of installations and applications, it was decided, was the answer.

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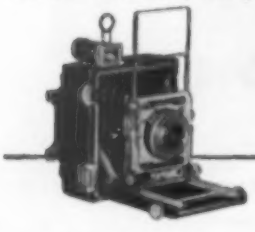

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but don't allow them to import or export gold. Some, like the U.S., ban all private gold holding and trading—except in "numismatic gold," a term that now covers gold coins dated 1933 or earlier. Other countries, like Greece or Lebanon, permit private gold dealings and the import and export of gold in any form.

• **Shady Side**—All this makes the international gold market a weird operation. You get a good picture of its scope when you dig into the question of how newly mined gold from South Africa finds its way into the possession of Indian gold dealers.

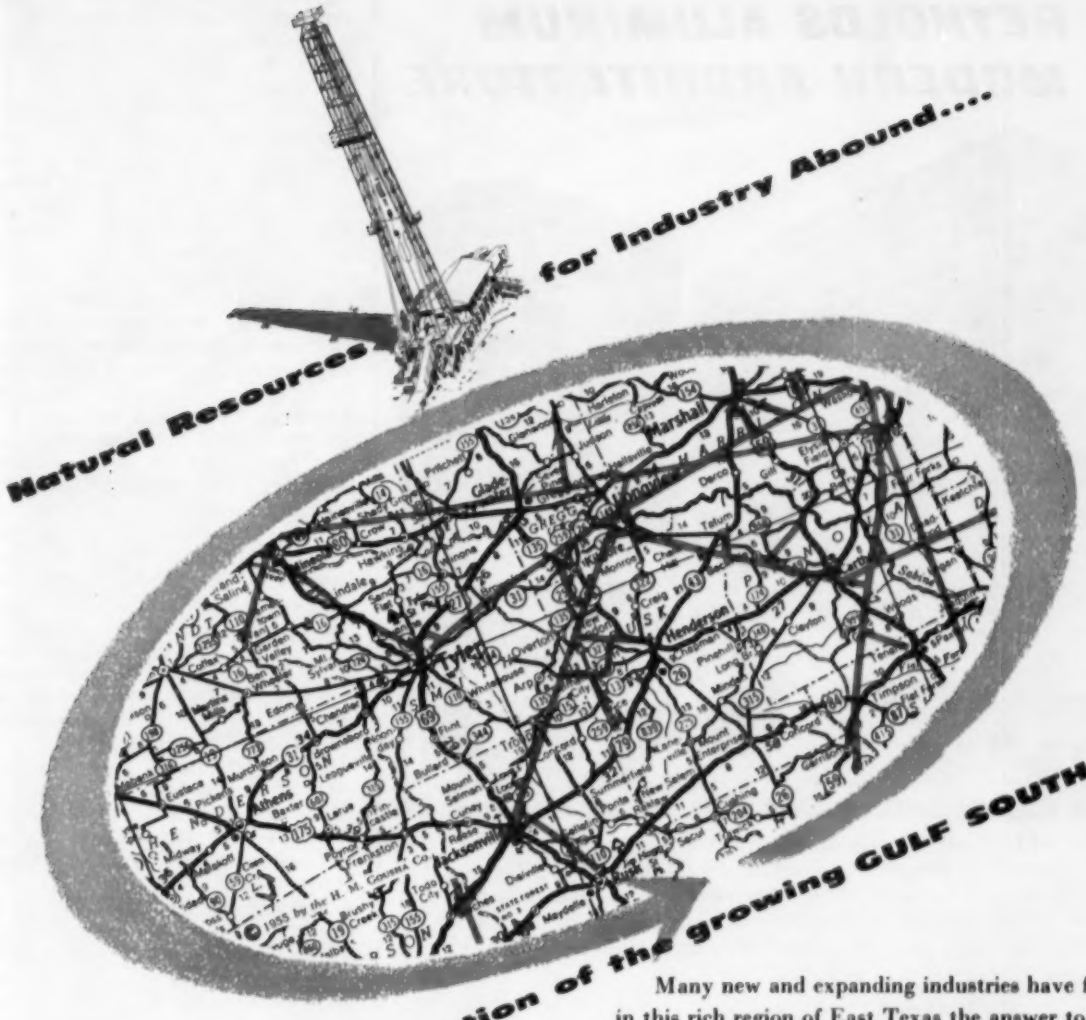
South Africa ships the gold in bars to the London market. There, any nonresident of the sterling area can buy it for: (1) U.S. or Canadian dollars, or (2) "registered" sterling, banknotes that are issued against dollars or against gold itself. This "registered" sterling was specially created for gold trading when the London gold market reopened.

Next step in the chain comes when a gold dealer in, say, Beirut, Lebanon, cables a London agent that he wants to buy some gold bars, and that he'll pay for them in U.S. dollars. The London agent buys the gold, insures it with Lloyd's, puts it aboard an airplane and it's flown to Beirut. There, the gold is transferred to another airplane that flies it to Kuwait, a port on the Persian Gulf.

Kuwait operators load the bars on a barge and sail them across the Arabian Sea to a point a little more than three miles offshore from Bombay. An Indian gold dealer in a motor launch meets the barge. He carries with him two bags of Indian paper rupees—one for the Kuwait trader, the other for the Indian customs officials. The customs officer gets his cut before the gold dealer leaves port. (He gets a fixed percentage, too. On Nov. 20, 1952, the Indian customs officers at Bombay staged a sit-down strike for bigger bribes. They won. Now their fee is 2% of the gold's value, instead of 1%.)

The Bombay gold trader returns to shore with his bar gold. He sells it in the Bombay market either as bars or as laminated sheets, at premium prices. Wealthy Indians, with a centuries-long tradition of hoarding behind them, will pay handsomely for the one money they trust.

• **Switching Cash**—The Kuwait operators, who have traded gold for paper rupees, must now exchange their rupees for dollars that the Beirut dealer will need if he's to buy more gold in London. So, when the operators get back to Kuwait, they deposit their rupees in what's called "garage account" in a sterling area bank. The rupees thus become "resident sterling." This can be sold—at a discount, now about $2.73



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This is the first of a series describing the area served by United Gas. Map shows United Gas pipe lines in a portion of East Texas.

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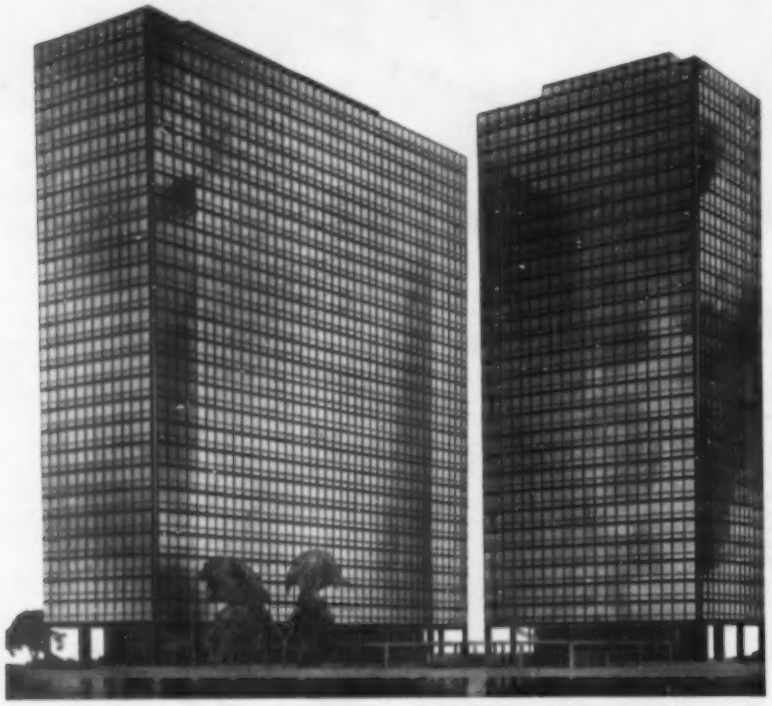

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These dollars go back to the Beirut dealer. And the whole operation can start again.

Undoubtedly, much of the world's appetite for gold has deep psychological roots. But, to people like Frenchmen or Greeks who have lived through generations of inflation, hoarding gold coins as a hedge against inflation is nothing more than cold logic. For instance, the French Napoleon worth 20 francs in 1914, is worth 3,000 now.

• **Enterprise Rewarded**—Since most governments stopped minting gold coins in quantity, the demand for the old familiar French Napoleons and British Sovereigns far exceeds the supply. A few years ago, a couple of enterprising men from Milan set out to end this imbalance. They bought a brass-button stamping machine, and obtained, through bribes, dies of prewar gold coins from Britain's Royal Mint and France's National Mint. Their business —producing Sovereigns and Napoleons— has flourished.

In 1953, the British government brought them to trial—in Switzerland—but there the Federal Judge threw out the case, said that the Italian manufacturers were only making medals.

Some governments have also gone back to making gold coins. Austria, Chile, and France are minting gold coins from old dies. Mexico, Bolivia, and Switzerland are minting gold coins bearing current dates.

• **Signs of Stability**—Gold fattens on the weakness of paper currencies. And, if you measure gold's current standing in these terms, you can conclude that the world has moved a good distance toward monetary stability since the end of World War II. For instance, in Paris at the end of 1946, bar gold sold at $62 an ounce. Now the Paris price is $35.95 an ounce.

But the movement hasn't been uniform. The more sensitive indicator is the price that's paid for premium gold—mostly for gold coins, since few boarders can afford to buy bars of gold.

In France in early 1954, gold coins were bringing a 20% premium above gold bars. This was down to 2% by early June, 1955. Then it began rising again. At the end of the year, it was up to about 10%. Middle Eastern demand for gold has also been rising.

• **Respectable Role**—In its respectable Dr. Jekyll role—to cover balances between governments—gold is clearly in the ascendant. As part of their effort to build a freer system of international trade and payments, governments are trying to accumulate more gold. They see it as a stable means of international payment and as an insurance of national liquidity. **END**

THE MIGHTIEST LITTLE WORKHORSE IN BUSINESS

The Comptometer doesn't do every figure job business calls for. But it does so many jobs so much better, it is in demand practically everywhere. That's the reason Comptometer has accumulated more business experience and more office seniority than any other adding-calculating machine.

Operators like the operating ease and, from results, bosses can't help rating its efficiency high. Inventive engineers gave Comptometer Floating Touch, a synonym for operation without fatigue. Through another Comptometer first known as Direct Action, answers appear instantly in large readable figures. The machine is unfailingly accurate. In case the operator does slip, signals are flashed to the senses—via sight, sound, touch.

Whether this wondrous little workhorse can do certain jobs in your office better is something you may want to work out with the Comptometer representative. If you'd like a demonstration on your work, call him in. He's in the Yellow Pages, or send the coupon.

COMPTOMETER®

FELT & TARRANT Mfg. Co.
1733 North Paulina St., Chicago 22, Illinois

Gentlemen: Without cost or obligation—

- ☐ I want more information about the new Comptometer
- ☐ Please arrange an office demonstration
- ☐ Please arrange for a free office trial

Name_____

Company_____

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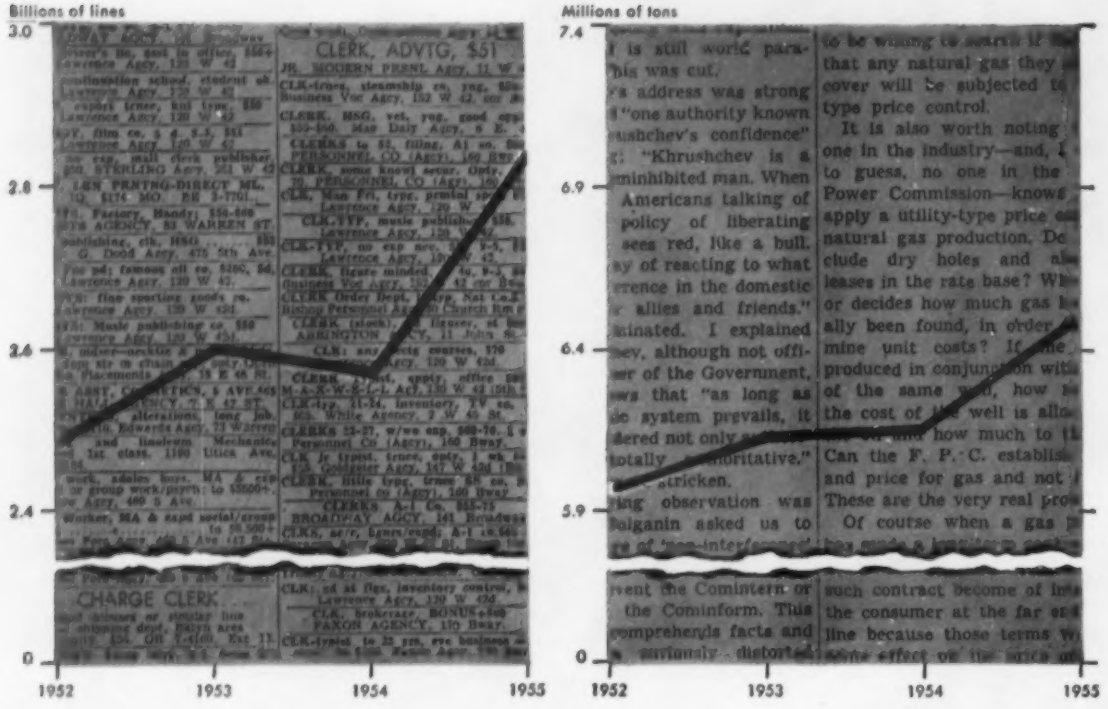
City_____ Zone____ State_____

Other products: COMPTOMETER® DICTATION MACHINE; 10-Key COMPTOGRAPH® CALCULATING-ADDING MACHINE
Offices in principal cities and throughout the world.

Peak Advertising Linage ... Pushes Newsprint Consumption Up



Data: American Newspaper Publishers Assn.

And the Presses Are on a Diet

Newspapers are fatter with advertising and sell more copies, so the use of newsprint has been pushed to a record high (chart). For three years in a row, more newsprint has been used each year than produced by the paper mills—the difference, about 100,000 tons last year, has been drawn out of stocks that are fast melting away.

There's some hope for the hard-pressed newspaper publishers. The Commerce Dept. estimates that, with some new capacity due to be added soon, the supply for the current year may just about match the demand.

The spot, or open, market is some help, too. It's still a very small factor—by far the biggest part of newsprint sale is on contract—but, as in any tight market, extra tonnages are appearing from here and there. Publishers who are willing to pay anywhere from $180 to $300 a ton at spot prices, compared with a contract price of $130 a ton in New York, can pick up paper to keep their presses going. Publishers also lend each other paper through their state associations and the American Newspaper Publishers Assn. to cover real emergencies.

• **How They're Doing**—A cross-country sampling of newspapers' situation by BUSINESS WEEK reporters finds publishers worried but not panicky. None of the papers said it was down to rock-bottom, though one was pretty close and all were feeding their presses on a hand-to-mouth basis.

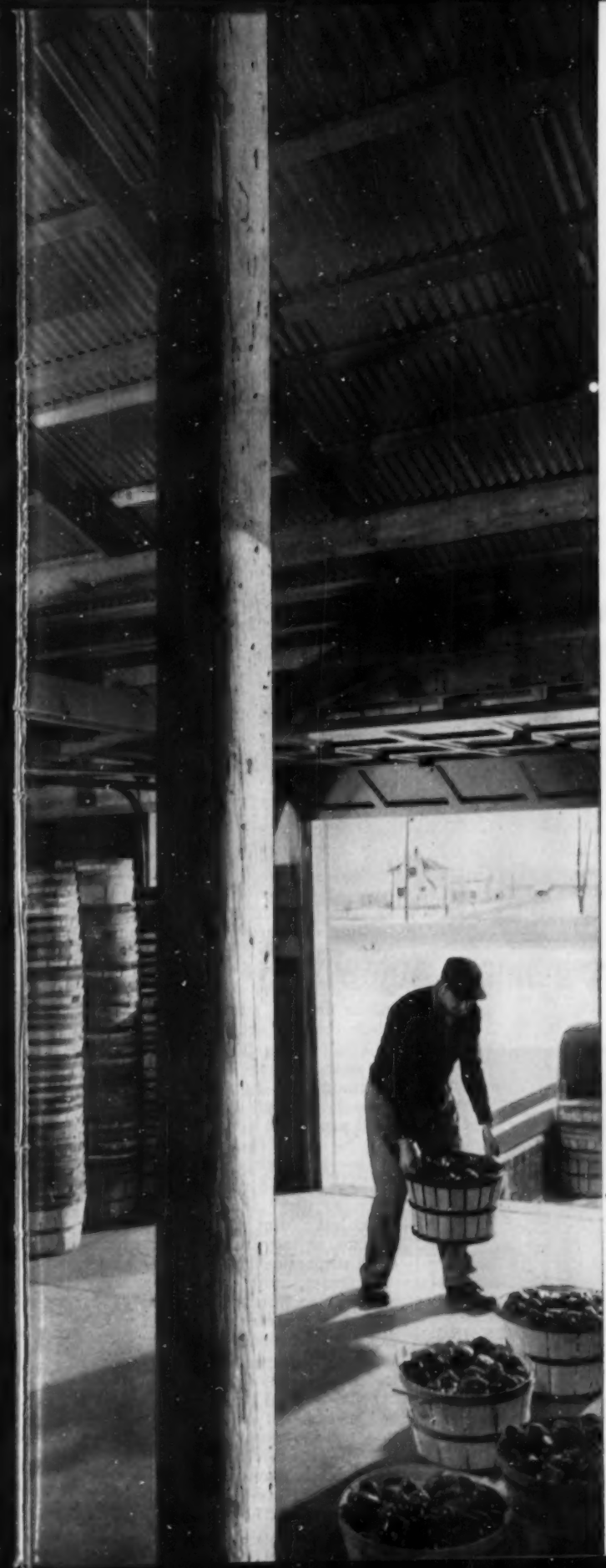
"This time of year," says Maynard Ashworth, publisher of the Columbus (Ga.) Ledger-Enquirer, "we generally build up a little, but now we're eating into stocks. Come spring, we'll be looking up the track, living out of freight cars, I guess."

Peyton Anderson of the Macon (Ga.) News and Telegraph says his papers use 3,400 tons of newsprint per year and, until 18 months ago, regularly kept an inventory of 1,000 tons—more than three months' supply. "Now we're way under 30 days' supply," Anderson says. "Each time a carload of paper leaves the mill, I know where it is, how long it will take to get here, and which editions it will be used for. That's how tight it is."

• **What to Do**—Newspapers are shaving their newsprint needs in various small ways, trying to avoid any action so drastic as the actual rationing of advertising space or a deep cut in the number of copies they print.

Some papers have already made plans to ration their advertisers if it becomes necessary. Others don't want even to think about such an income-cutting step. "I'll buy some of this high-priced foreign stuff first," one publisher declares.

Advertising revenue is more important than ever, and publishers don't want to turn any of it away. "In the newspaper business," says one publisher, "you make money by processing news-



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Heavy $10,000 hydrocooler, above, **is safely housed in Eastern Michigan Vegetable Marketing Company's processing plant. Built on poles, plant is located near Capac. Clear span pole design is also available when desired for added working or bulk storage space.**

THE DOW CHEMICAL COMPANY, Dept. PE 970J, Midland, Michigan.

☐ Send me information on PENTA-treated pole buildings for this use:

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☐ Send me name of nearest PENTA-treated pole supplier.

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Firm Name _____

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City _____ Zone _____ State _____

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VANS BY WIRE...

assuring On-Time Service in

NORTH AMERICAN

"WIFE-APPROVED" MOVES!

When your transferred employees get their new home all lined up, they want to move "right now." That's when North American Van Lines' nationwide leased wire dispatching network goes into action. And a van arrives on time—for another "Wife-Approved" move!

NAVL "FOLLOW-THRU" SERVICE

Every company-paid move receives this same careful attention when you specify NAVL. Trained experts "follow-thru" from beginning to completion of your move. North American has agents in more cities than any other van line.

Build employee-company goodwill with safe,* courteous "Wife-Approved" moving service for the personnel you shift to new cities. It pays off! Call your local NAVL agent now for complete information.

Specialized NAVL Services:

- Exhibit Displays—door-to-door in padded vans, minimum crating.
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- New Furniture, Appliances, Fixtures—via NAVL-Creston Division, factory to dealer or user, uncrated.
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- Modern Storage Warehouses everywhere.

HIGHEST RELIABILITY—RATED AAA-1 FINANCIALLY

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"WIFE-APPROVED" MOVES
North American VAN LINES, INC.
LONG DISTANCE MOVERS

NORTH AMERICAN VAN LINES, INC.
World Headquarters: Fort Wayne 1, Indiana
North American Van Lines Canada, Ltd. • Toronto

*AMERICA'S SAFEST MOVERS: winners ATA National Safety Award for household goods movers traveling over 300,000 miles. (North American vans average 35 million miles per year annually!)

WORLD-WIDE MOVING SERVICE BY LAND, SEA, AIR

print. With the high costs you have right now, you need volume to make any money. With this newsprint shortage, you can't get volume, so you have to raise your percentage of advertising to offset high costs and simply try to make as much money per ton of newsprint as you can."

Many newspapers are asking their advertisers for leeway in when they run their ads—an effort to smooth out the week's cycle of heavy and light days in advertising space. Some publishers frankly admit this is "a rather forlorn hope" in coping with the newsprint shortage.

Other papers are tightening up on their news stories, cutting out special sections and curtailing features. Most are holding their press runs tight—not printing a lot of extra papers for newsstand sale or for back-copy files.

Some have switched format, and others are considering it. A paper can save around 5% on newsprint by packing nine columns to the page, with the columns slightly narrower and the page slightly wider. It doesn't look so attractive, but it's a saving.

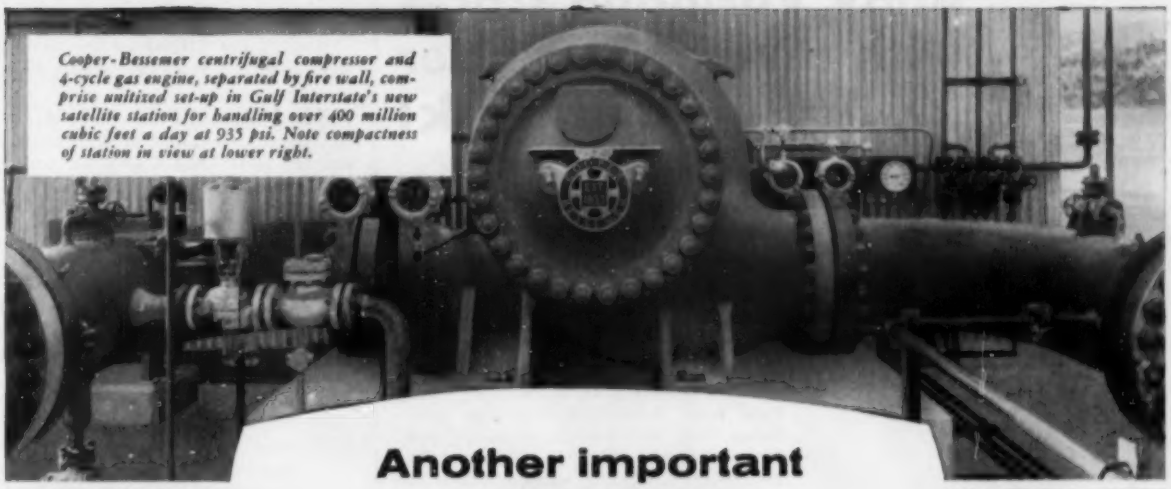
• **Tighter Writing**—Publishers and editors insist that the reader isn't being short-changed by all this. In Richmond, Va., for example, the News Leader and the Times-Dispatch think they're doing a better job for the reader through their campaign for tighter writing and capsule coverage, even when the state general assembly is in session and is dealing with desegregation, the biggest issue since the Civil War.

"We want to give the reader a taste of as many stories as before," City Editor John E. Leard of the News Leader explains, "but give him a real bite of fewer stories. We'll handle the good features adequately but not exhaustively; we'll stress one angle and summarize the rest, rather than doing the whole thing in detail. The result will be a tight, neat, quick-to-read package. It's more work for us but a break for the reader."

• **Small Papers' Plight**—In general, small papers feel the pinch much more than big ones. They have less flexibility, less latitude for saving paper. For example, most don't run special sections, so they can't save by cutting those out. Most don't run multiple editions, so they can't save by cutting out a street-sale edition here and there.

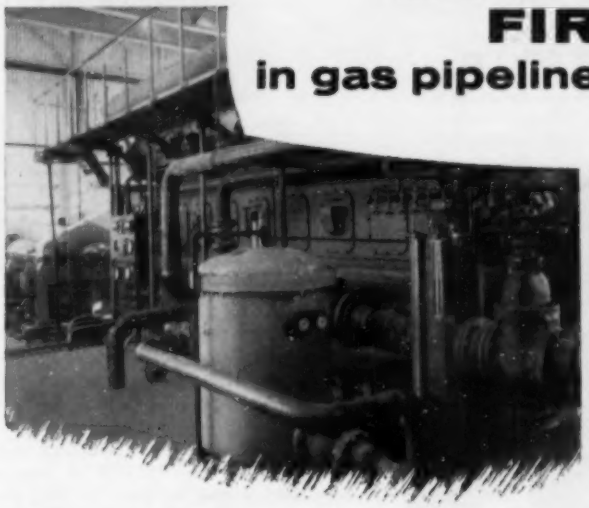
Moreover, small papers rarely carry much of an inventory of paper. If a carload is delayed a month, a small paper may have nothing to print on. A small daily may use only about 10 carloads a year; a small weekly, two.

Some 80% of the weeklies use flatbed presses that require sheets rather than roll—and more than 300 different sizes of sheets are needed. Cut sheets are more expensive, and the variety of



Cooper-Bessemer centrifugal compressor and 4-cycle gas engine, separated by fire wall, comprise unitized set-up in Gulf Interstate's new satellite station for handling over 400 million cubic feet a day at 935 psi. Note compactness of station in view at lower right.

Another important FIRST in gas pipeline transmission



Cooper-Bessemer ENGINE-DRIVEN centrifugal COMPRESSORS

● A new chapter in the progress of gas transmission has been opened at Gulf Interstate Gas Company's new compressor station near Stanton, Kentucky. Here, a Cooper-Bessemer engine-driven centrifugal compressor is the first such unit to go into regular service on a main gas transmission line.

This precedent is a tribute to Gulf Interstate management for alertness and decisive action in the application of promising new ideas . . . here successfully applied through the close cooperation of Gulf Interstate and Cooper-Bessemer engineering. These are a few of the highly significant features:

SATELLITE STATION . . . for remotely controlled automatic operation—*another* "first" for Cooper-Bessemer engine-driven centrifugals.

IDEAL FLEXIBILITY . . . combines continuous heavy-duty performance with ability to meet peak demands. Greatly increases flexibility of line-to-market gas transmission.

EXTREME SIMPLICITY . . . requiring no separately operating auxiliaries, and unequalled in simplicity of control by most alternate methods.

UNMATCHED ECONOMY . . . unsurpassed in fuel economy by any other type of prime mover today. Secondly, instead of 2 to 5 large conventional compressors, this one unit meets entire requirements.

Cooper-Bessemer engine-driven centrifugals offer identical or similar gains in various types of service. Additional installations are already under way. Why not discuss *your* plans with the nearest Cooper-Bessemer office?

Mount Vernon, Ohio

COOPER-BESSEMER

Grove City, Pa.

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COMPRESSORS, RECIPROCATING AND CENTRIFUGAL • DIESELS • GAS ENGINES • GAS-DIESELS

Andy Varipapa scores with a rumble, clatter and crack!

When champ Andy Varipapa bowls, the crowd sees his strikes, and doesn't mind the din. But din in an office is different. Clicking typewriters, clacking adding machines, ringing phones and the buzz of conversation slow down work and cost you money.

Gold Bond Acoustimetal ceilings muffle noise. Your office becomes pleasantly quiet. Nerves are rested. Efficiency is increased. And because the perforated panels are metal and backed with incombustible pads, they're fireproof. Because they're enameled, they can be kept clean with a damp cloth. They can be repainted without affecting sound absorption. And units are easily removed for quick access to utilities. If you're planning to build or remodel, include Gold Bond Acoustimetal in your plans.

Call your Gold Bond Acoustical Contractor. His name is in the Yellow Pages of your phone book under "Acoustical Contractors."

Get sound comfort with

Gold Bond®

ACOUSTICAL PRODUCTS

Send for free booklet

The Decibel gives you illustrated, acoustical case histories. Write to Dept. BW-26 National Gypsum Co., Buffalo 2, N. Y.

*Name*_____

*Company*_____

*Street*_____ *City*_____

*State*_____

sizes spells trouble for the paper that must pick up an odd lot of a certain size.

Besides, the flatbed presses are rarely adaptable to a new paper-saving change in format.

• **The Matter of Price**—Since the first, well-publicized round of price increases last fall (BW—Nov.5'55,p74), contract prices for newsprint have settled at $130 a ton in New York, up $4 from the old price.

It's generally the smaller papers that have to scramble for extra paper on the spot market, but the higher contract price, which covers the bulk of the tonnage, particularly hurts the big newspapers.

For a big mass-circulation daily, newsprint can amount to 55% of total cost; on a small paper, newsprint may be only about 15% of total cost—labor runs relatively much higher than for the small paper.

Extra newsprint on the spot market comes from three or four sources:

• From overseas, with the premium price covering the extra transportation cost.

• From marginal mills, some of them obsolete by ordinary standards, that can compete only in a tight market like the present one.

• From brokers who hold back tonnages from customers that they know are well fixed.

• From publishers who have contracted for more tonnage than they need and who—in violation of their contracts with the mills—sell to brokers.

• **Source of Trouble**—Publishers make contracts but they haven't in practice been forced ever to take the full contract tonnage. The mills allow for this in their year's planning, and they normally contract to supply more tonnage than their capacity to produce. That's where much of the trouble comes in.

Late in 1954, the mills asked their customers how much they thought they would need in 1955. Publishers asked for about the same tonnage they used in 1954. Then business—and advertising—spurted, publishers began ordering their full contract tonnage, and the mills couldn't deliver. They fell behind on deliveries, have now announced first-quarter 1956 cutbacks of 7% to 13%. That hurts particularly since Easter—a big advertising season—comes early this year.

Mills complain they can't build new capacity on the basis of contract tonnage that may evaporate when ordering-time comes around. But expansion is in the cards. The Commerce Dept. figures that U.S. capacity should increase 30% from 1955 to 1958 and Canadian capacity 14% (Canada supplies about 80% of U.S. needs). END

This "ONE-MAN GANG" cuts earthmoving costs

• Developed and pioneered by Euclid, the Twin-Power principle utilized in the Model TS-18 makes it a top performer on a wide range of work. Unequalled for power and traction, this "Euc" Scraper is self loading in most materials—works without the supplementary push tractor required by other scrapers. On large earthmoving projects or smaller industrial operations, this one-man tool increases production and cuts the cost per ton or yard of material moved.

Two diesel engines, one in the tractor and one behind the scraper bowl, provide 436 or 518 total h.p. Separate Torqmatic Drives consisting of Allison torque converters and semi-automatic transmissions assure a smooth, steady flow of power to all four wheels. The TS-18, with a struck capacity of 18 cu. yds., works under job conditions

TWIN-POWER
TS-18
EUCLID SCRAPER

that stop other scrapers. Its versatility makes it a profitable machine for high production work or as a utility tool on big jobs and many industrial operations.

The TS-18 Scraper is typical of advanced engineering that has made Euclid a leader in the heavy construction equipment field. If your operations require moving large tonnages of earth, ore and other materials, learn why Euclids are your best investment. Complete information is available from your Euclid dealer or write direct.

EUCLID DIVISION
GENERAL MOTORS CORPORATION
Cleveland 17, Ohio

YOU BENEFIT...
by over 50 years of experience

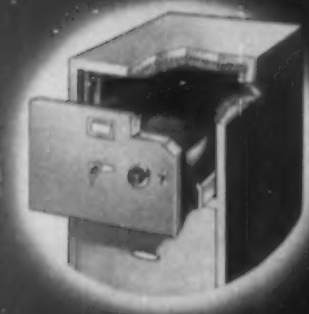
Shown is Uplifter loading highway truck.

Revolvator Uplifters: 1000 lb. and 2000 lb. capacity. Also dual capacity hand-operated models.

Revolvator Uplifter Portable Elevator. Multiple use, multiple purpose Revolvator Uplifters, products of 50 years of engineering know-how solve handling problems throughout all industry. Ideal for shop usage, Revolvator Uplifters also speed handling in the shipping department with equal efficiency. The Uplifter is ideal when no shipping dock is available. Electrically-powered Uplifter portable elevators are available in either "plug-in" or battery operated models. Write for information.

REVOLVATOR CO.
8711 Tonnele Ave., N. Bergen, N. J.

ARE YOUR RECORDS
Worth Filing?



If they are, then they're worth filing in a safe place 24 hours a day. A Hercules Multi-Lox insulated file will protect your valuable business papers from loss by fire at the point-of-use! Why shouldn't it? Look at that construction—the steel inner and outer walls with wire reinforced insulation between. That's the reason it's certified by Underwriters' Laboratories. Available in letter or legal size drawers. At your Meilink dealer or write Meilink Steel Safe Company, Toledo 6, Ohio.

with MEILINK *it's for keeps*

Most complete line of safes and insulated products

Troubled Oil in California

A movement gains ground for a state law compelling the unitization of oil fields where 75% of the owners agree. This means treating each multi-owner field as a single property.

The California oil business is caught up in a fierce fight over unitization—the operation of an oil field as a single unit no matter how many ways its ownership may be split.

Richfield Oil Corp. is spearheading an initiative move to get the issue of compulsory unitization on the ballot next November. It seems sure to get enough voter signatures on the initiative petitions by the Apr. 3 deadline. Once on the ballot, compulsory unitization will be hard to beat, most Californians think.

Under the proposed law, the minority of owners in an oil field would have to go along with unitization if 75% of the owners agree to that step.

• **Opposing Lineups**—To the wildcatter and the small, independent oilman, "compulsory unitization" are fighting words. Others are also opposed to the plan, including the big Union Oil Co. of California. But Richfield has powerful backing: Shell Oil Co., General Petroleum Corp., Tide Water Associated Oil Co., Standard Oil Co. of California, Continental Oil Co. And it has a conservation angle.

• **Advantages as a Unit**—From an engineering standpoint, the ideal way to develop an oil or gas field is to treat it as one, regardless of ownership. All wells in a field drain a common pool; the way each well is operated can affect the total yield of the field's oil and gas. To get maximum recovery from a field then, such things as the spacing of wells, the techniques of production, and the rate of output should be under strict over-all control.

This shows up oftenest in schemes for repressurizing fields. Injecting gas or water down into the common pool will sometimes force oil up when natural pressures underground have lost their power to do it. But unless a pool is unitized, no one wants to repressurize. No operator wants to pay to pump gas or water into his own well, only to see oil spurt out of his neighbor's well.

• **Opposition**—Even the severest critics of unitization will grant its conservation value in increasing recovery from an oil field. And voluntary unitization programs are in effect in certain fields in most oil-producing states. It's the "compulsory" part of the idea that sticks in the craw.

Advocates of the plan reason that, unless it's compulsory, a single negative vote can hamstring unitization in a field that may have hundreds of owners. However, making a 75% majority vote compulsory for all is a drastic limit on the property rights of the man who wants to vote "no"—it takes away his discretion about managing his own property.

• **Longer Payoff**—Under unitization, each owner shares in the cost of operating a field in proportion to how much he owns; he shares in the profits and the long-term advantages in the same proportion. But suppose, the critics ask, a man doesn't want to invest more money now for the sake of a bigger gain later? Maybe he's a wildcatter who gambles on finding oil and, having found it, wants to produce fast or sell fast and move on. Almost inevitably, unitization would mean a longer payout on his well, which might well lower its immediate value. In any case, what happens depends on a decision made by someone else.

By and large, it's the smaller independent oilmen who are afraid of compulsory unitization. In California, they say, various combinations of a few big companies could make up the 75% majorities needed to control most of the state's fields. This, they say, would "place the destiny of the oil industry in the hands of a few."

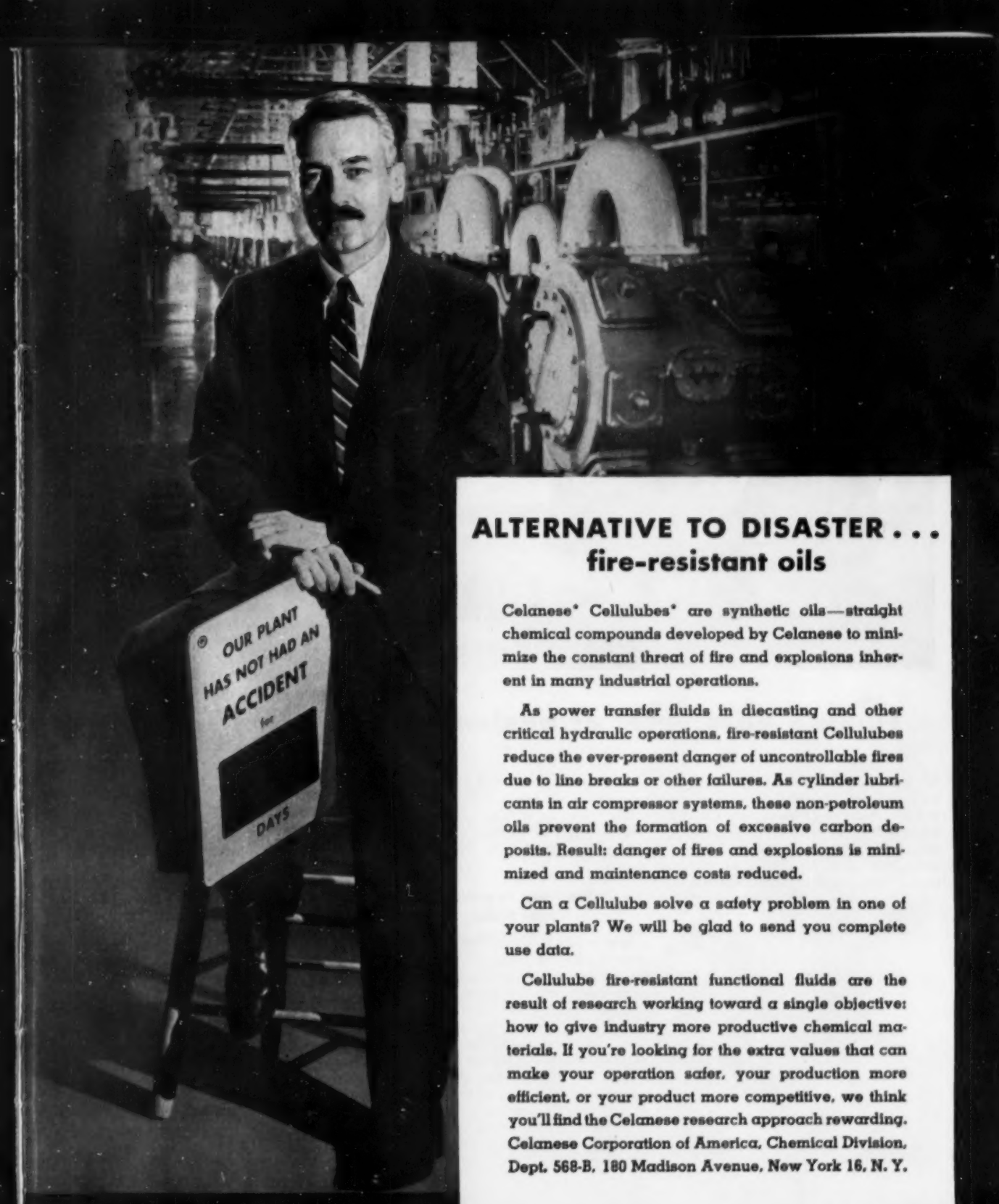
• **Suspicion**—The question of imports enters the arena, too. Most of the big companies behind compulsory unitization, which could well work to hold back current production, are also importers. The smaller operators never tire of pointing this out.

Union Oil Co. is also an importer, but its president, Reese Taylor, is one of the most outspoken critics of the unitization plan. Says Taylor:

"If a unit plan cannot be formulated which can be sold to the operators of a pool on its own merits, something is wrong with the plan. To force the operator into such a unit against his will is plain confiscation, even if blessed with a sprinkle of conservation."

• **Other Shackles**—Of course, oilmen in most producing states are under controls of some sort. In Texas and many other states (though not in California), prorationing systems keep them from producing as much as they want when they want it; they have a varying production "allowable" based on market demand (BW—Jan.21'56,p180).

In addition to conserving oil, prorationing also stabilizes the market, and small oilmen have learned to live with—



ALTERNATIVE TO DISASTER . . . fire-resistant oils

Celanese® Cellulubes® are synthetic oils—straight chemical compounds developed by Celanese to minimize the constant threat of fire and explosions inherent in many industrial operations.

As power transfer fluids in diecasting and other critical hydraulic operations, fire-resistant Cellulubes reduce the ever-present danger of uncontrollable fires due to line breaks or other failures. As cylinder lubricants in air compressor systems, these non-petroleum oils prevent the formation of excessive carbon deposits. Result: danger of fires and explosions is minimized and maintenance costs reduced.

Can a Cellulube solve a safety problem in one of your plants? We will be glad to send you complete use data.

Cellulube fire-resistant functional fluids are the result of research working toward a single objective: how to give industry more productive chemical materials. If you're looking for the extra values that can make your operation safer, your production more efficient, or your product more competitive, we think you'll find the Celanese research approach rewarding. Celanese Corporation of America, Chemical Division, Dept. 568-B, 180 Madison Avenue, New York 16, N. Y.

Basic reasons . . . . . for improved products

Acids
Alcohols
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Esters

Functional Fluids
Gasoline Additives
Glycols
Ketones
Oxides

Polyols
Plasticizers
Salts
Solvents
Vinyl Monomers

Celanese® CHEMICALS

Agricultural, automotive, aviation, building, electrical, paper, pharmaceutical, plastics, surface coatings, textile

and to like—this idea. But this is about as far as they want to go.

In California, two earlier conservation laws that tied production to market demand were passed by the legislature (in 1932 and 1939) only to be defeated by referendum. This time, the proposed Oil & Gas Conservation Act says specifically that production shall be limited only to prevent waste—market demand is not to be taken into consideration. In any event, California no longer has a surplus of oil, so there's no need to cut back production to keep prices firm.

• **Three-Man Board**—If the act takes effect, a three-man commission will have authority to issue any order to prevent waste, including a limit on production. It could unitize a pool only on request of 75% of the ownership, and only if it is convinced that such action is necessary. It could issue a conservative order only if the value of the extra oil that will be recovered exceeds the extra cost involved.

• **Publicity Campaign**—Since the spring of 1954, Richfield has been hammering the need for oil conservation, through lectures, demonstrations, advertising, community dinners, an exhibit at Disneyland. This month, the company started a weekly program over 13 TV stations, 12 in California and one in Arizona, with "messages on conservation" instead of commercials. These messages are concerned not only with oil but also with birds, fish, flowers, water, even health.

Richfield's president, Charles S. Jones, is known as a strong advocate of conservation in general. But aside from those interests, Richfield's own needs explain some of its zeal for conservation.

• **Richfield's Shortage**—For a long time, the company has been needing oil badly. In 1949, it discovered its Cuyama field, California's most important oil find in 20 years, but it still doesn't have enough for its refineries. Late last year, it contracted for sliding-scale royalties ranging from 30% to as much as 100% for drilling rights in the Rincon field near Santa Barbara.

Compulsory unitization promises greater recovery for Richfield from its present properties. Voluntary unitization, the company says, is frequently stalled by one small operator. As proof, it points out that since 1949, it has been able to unitize only five pools in which it is involved.

There are only 12 completely unitized oil fields in the state out of a total of 550 fields. Figures of the Interstate Oil Compact Commission show that ultimate recovery from these 12 pools without unitization would have been only 23.4% of the oil originally in place; with unitization, the ultimate recovery rises to 41.7%. END

Fuming barometer of business

Why are sulphuric acid shipments one of the handy barometers of general business activity? Because so many basic industries have so many uses for this fuming, corrosive acid. In steel mills, oil refineries, chemical plants, tanneries. For making fertilizers, soaps, plastics, explosives. For refining copper, nickel, uranium.

But it's tricky stuff to handle! That's why so many of the leading sulphuric acid producers ship in Hackney acid drums.

Hackney Two-Piece Acid Drums

::. are made with entirely seamless chimes. They have no interior cracks or crevices where sulphuric acid traces can linger and carry on intensive corrosion between shipments. Controlled heat treatment increases corrosion resistance. Sturdy construction takes shipping and handling abuses on the chin.

Acid drums are just one of many quality returnable shipping containers described in our drum and barrel catalog. Send for a copy today and learn how your product can benefit from Hackney experience.

Pressed Steel Tank Company
1493 South 66th Street, Milwaukee 14, Wisconsin
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CONTAINERS AND PRESSURE VESSELS
FOR GASES, LIQUIDS AND SOLIDS

You see so much more when you rent a car from Avis

It's like having your own car with you on vacation . . . without the bother of getting it there and back. After arriving by plane or train, you and your family will be free to roam . . . to see so much more . . . with the car you rent from Avis.

This year have a sparkling new Plymouth or other fine Avis car greet your vacationing family at the airport or station. It will be a car you are proud to drive.

And you can rent an Avis car in minutes for business or pleasure. Call your local Avis office (listed under "A" in the phone book). Or ask the agent who sells your plane or train tickets. Avis Rent-a-Car System, Inc., Hotel Statler Bldg., Boston 16, Mass.

AVIS

RENT-a-CAR

Away or at home . . . a car of your own

Photographed in Crandon Park, Dade County, Fla.

They flew to Florida then toured the state in a handsome new Avis car. Saw winter headquarters of the circus, Everglades National Park, Big Cypress Swamp, Lake Okeechobee and Palm Beach. 534 miles in 7 days, and the cost, including gas, oil and insurance, was approximately $12 per day.

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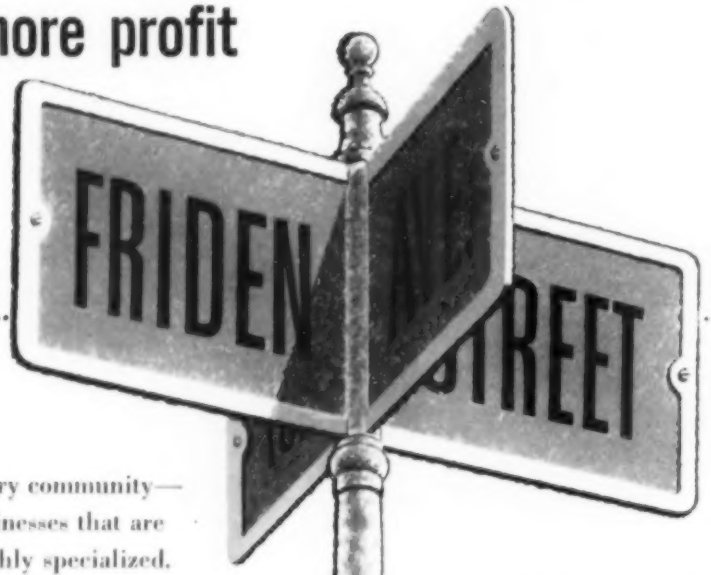

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INTERNATIONAL OUTLOOK

There's razzle-dazzle in Soviet foreign policy these days. Sometimes it's hard to tell what's propaganda and what's diplomacy.

One moment Premier Bulganin is asking Pres. Eisenhower for a Soviet-American friendship pact.

The next minute he's trying to (1) cut in on Latin America's economic development and (2) undermine our alliances with Turkey and Pakistan by offering economic aid and military security.

The Soviet game in Turkey and Pakistan isn't hard to size up. These countries, which are key members of the Baghdad Pact, are suffering from inflation generated by rapid industrialization and heavy military spending. Moscow is moving in just as the question of more U. S. aid is hanging fire.

It's harder to figure what's behind Bulganin's two notes to Eisenhower. There is clearly a Soviet domestic angle to this gambit (BW—Feb.4,'56,p99). And no doubt Bulganin wants to look like a peacemaker abroad, especially in Asian eyes.

Some observers expect Bulganin to push this line all the way to another bid for a summit meeting.

—•—

Premier Guy Mollet is off to a bad start in handling the Algerian problem—the first order of business for his new government.

Here's the story: Before going to Algeria on Monday, Mollet appointed General Catroux, a Liberal among French colonial administrators, as President General in Algeria; Catroux was supposed to end the fighting and prepare the ground for a settlement. But when Mollet arrived in Algeria, he was met by a rioting mob of French residents. To placate these diehards, who oppose any change in Algeria, Mollet asked Catroux to resign.

At midweek Mollet was in a real fix. By backing down to the French mob, he had undercut his chances for an understanding with the moderate Algerian nationalists.

—•—

A row is in the making within the Western alliance—over the size of West Germany's military budget. Finance Minister Fritz Schaeffer seems to be the villain of the piece.

Up to now, Bonn has been contributing 3.2-billion D-marks to the upkeep of U. S., British, and French forces stationed in West Germany. This sum has come out of a yearly military budget of about 9-billion D-M.

Now Schaeffer insists that the U. S., Britain, and France should pay their own bills, starting in May. He claims that Bonn can't afford the money, now that it's launching its own military program.

The U. S., Britain, and France flatly refuse to go along with Schaeffer on this. The British, in particular, are adamant. They can't see turning over $225-million a year to Bonn while West Germany's financial position is so strong and their own balance of payments is so shaky.

Washington and London have been telling Bonn since 1954 that West Germany would need a military budget of 12-million D-marks a year for the period 1956-1959. Otherwise it couldn't cover its military obligations to NATO.

Schaeffer has consistently refused to agree, except on one condition—that the U. S. would make up the difference. Although Schaeffer claims that Bonn got assurance from Washington to this effect, the U. S. recently refused to make any new financial commitments. Apparently that's why Schaeffer is playing so tough.

Washington doesn't think that this is a bitter-end position in Bonn. But the problem may not be settled until Chancellor Adenauer comes to Washington this spring.

—•—

This week New Delhi was putting the finishing touches on the **final draft of India's new Five-Year Plan.**

To help cover the cost and counterbalance inflation, the Nehru government is planning three new tax levies that are bound to pinch Indian businessmen: (1) a steeply progressive **personal expenditure tax;** (2) stiffer **estate duties;** and (3) an annual **capital levy,** though not a stiff one.

The new taxes are intended to produce **$750-million** over the next **five years.**

—•—

International controls over trade with Red China will be eased. Despite outcries from Congress, the U. S. will go along. However, the U. S.'s own embargo on shipments to Red China will remain in force.

The China control lists will be brought **more closely in line with those that apply to trade with Eastern Europe and the Soviet Union.** But the relaxation will be selective, not across the board. Controls on **natural rubber** will be reduced to a minimum, perhaps even scrapped. Other commodities likely to be affected are **fertilizers** and **dyes,** plus **tinplate** from Japan.

The policy shift is expected to pay political dividends to the U. S. It will **make for closer ties with anti-Communist Ceylon by putting it in a position to get U. S. aid.** Ceylon is now barred because of its rubber trade with China. Our relations with Malaya, Indonesia, and Japan should also improve.

—•—

The British government is prepared to spend at least $50-million for the **development of a transatlantic turboprop**—the Bristol-designed Britannia. The plan is to challenge the lead the U. S. is taking in air transport with the upcoming Douglas and Boeing jets.

Just this week the British cancelled a preliminary agreement Bristol had with General Dynamics, under which Convair and Canadair were to produce the Britannia. Apparently London decided that it would be giving away its turboprop lead if it let General Dynamics build the Britannia on this side of the Atlantic.

The project will be one of the biggest ever undertaken by the British aircraft industry, well beyond the resources of Bristol alone. So at least three or four leading firms will be involved including Short Bros. of Belfast—and De Havilland if it gives up the Comet. (The door has been left open for later licensing to Canadair or Convair.)

With three or four production lines in operation, **the British figure they can offer satisfactory delivery, starting in 1961,** for the Britannia—a 130 passenger plane with an estimated speed of 500 mph. They think the Britannia will have real advantages, despite its lower speed, over the Douglas and Boeing jets, including ability to use all major airports.

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He had a date with the Old Lady of Threadneedle Street

THE BANKER opened the package of film the moment it arrived at The First National Bank of Chicago. And he smiled as he relived a visit with the venerable Old Lady of Threadneedle Street—London's affectionate name for the Bank of England.

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For AFL-CIO, Honeymoon Is Over

● **This week's first executive council meeting was expected to follow harmony keynote set at merger convention.**

● **But union leaders were in an aggressive mood, ready to air their complaints before the council.**

● **Right off, a row developed over craft vs. industrial unionism, posing a big problem for the federation.**

Policymakers for the fledgling AFL-CIO this week began charting organized labor's course for the months ahead. And they deliberately picked the roughest waters in a sink-or-swim approach to the federation's future.

From the opening of the first executive council meeting in a seaside hotel in Miami Beach, it was evident that the 29-man board had come prepared to face up to difficulties that the December merger had raised—and that, up to now, the new federation had sought to minimize.

This was something of a surprise, even to those who had underplayed the difficulties for many months to put the merger through.

• **The Pattern Changes**—The executive council meeting had been expected to follow the go-easy pattern set at the merger convention. This was to have been a get-acquainted meeting in Florida sunshine, with a few hours of conferences daily and more time spent informally in cabanas beside hotel pools. The inevitable differences were expected to be explored and discussed pleasantly—but not argued about. The plan, of course, was to give the AFL-CIO highest body a good, amiable sendoff.

But union leaders arrived in Miami Beach prepared to prosecute their complaints before the council. And they showed little willingness to wait—as in the past in both AFL and CIO—for guidance from the parent organization's highest governing body. Instead, they showed an aggressiveness that could indicate that AFL-CIO affiliates aren't ready to rely entirely on federation leaders to take care of their interests.

• **Immediate Clash**—Walter Reuther's United Auto Workers (strongly supported by other former CIO unions) and the powerful building trades unions from AFL tangled quickly on these two issues:

• Craft union demands for jurisdiction over construction and maintenance work in industrial plants—now largely under industrial union contracts.

• Craft union opposition to mass organizing plans of AFL-CIO.

The dispute over jurisdiction was a typical one, apparently played up to force a quick showdown. Both the UAW and building trades unions claim jurisdiction over work being done to convert part of a Studebaker-Packard Corp. plant in Detroit for military production. The jobs—involving among other things the moving of machinery—were shared by auto and craft unions until just before the AFL-CIO council meeting. Then the building trades unions, backed (some say prodded) by the Brotherhood of Teamsters' powerful James R. Hoffa, demanded control over the jobs. UAW balked, and the sharing arrangement broke down. UAW members took over the work, and building tradesmen began picketing.

Although the fight is now before the AFL-CIO executive council, it may ultimately be dumped in the lap of a joint committee from the Building & Construction Trades Dept. and the Industrial Union Dept. This committee was set up last December to handle jurisdictional rows such as this one.

• **Craft Union Fears**—Sudden controversy over mass organizing apparently is a result of building trades union fears that industrial unions might seek to take over in nonunion pockets in the construction industry through AFL-CIO's coming big drive.

The federation campaign, to be directed by John Livingston from UAW, is now in an advanced blueprint stage: Nonunion industries and plants have been singled out for organizing activity (BW—Jan.28'56,p154), organizers are being deployed about the country for maximum impact, and funds are being sought to supplement $4-million pledged by former CIO unions for mass organizing.

Through the years, many of AFL's conservative craft union leaders have opposed mass organization in their crafts. Traditionally they have tried to keep membership in their trades somewhat restricted.

And, building trades union leaders always have opposed broad industrial organizing. They contend it places craftsmen—plant carpenters or electricians, for instance—under production workers' unions.

So AFL-CIO craft leaders, and particularly those in the construction industry, are wary of the federation's mass organizing plans. The fact that the drive is headed by an industrial unionist and, so far, largely financed by industrial unions funds adds to their uneasiness.

• **Independent Drive**—Spurred by fears that AFL-CIO mass organizing strategy might enable industrial unions to carve out jurisdictions in areas claimed by the crafts, the Building & Construction Trades Dept. recently mapped plans for an organizing campaign of its own.

Under AFL-CIO procedure, a program like this must (1) have advance approval by the federation, and (2) be coordinated with the federation program. But the Building & Construction Trades Dept. went ahead with plans without asking for an O.K. in advance from Livingston. It made clear that it intends to organize separately.

This poses a major problem for the federation. Unless the craft drive is integrated with that of AFL-CIO, trouble can be expected—and the outcome might be counter-organizing by the Industrial Union Dept.

• **Political Action**—As the week progressed, executive council planning in another major area of AFL-CIO operation—politics—moved more smoothly. It was obvious at once that federation political strategists plan a concerted effort in 1956 to elect "friendly" Democratic federal and state administrations.

With this in mind, efforts are being pressed for merging most AFL and CIO state and local bodies before November.

The reason for this is obvious. In the past, AFL and CIO bodies often have backed rival candidates, dissipating labor's voting strength. Now, with the top-level merger completed, AFL-CIO is determined to prevent this from happening again.

• **Splits Barred**—The executive council this week made clear that all future endorsements on the state level must be approved by it. Where state AFL and CIO bodies have merged, this will be only a formality. Where they haven't it will bar splits. **END**

How a special wire cloth

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● Fanning mill cloth—used in huge machines for grading seeds—must be virtually perfect dimensionally. Even slight deviations in the mesh openings affect the value of seed crops . . . for grading must be *precise* under rigid government inspection.

Like other producers, the *Reynolds Wire Division* of National-Standard had been supplying cloth of bright galvanized wire. Could it be improved upon? After prolonged research with various finishes and types of wire, Reynolds hit on the idea of developing cloth of National-Standard's Copperply® wire for this special use.

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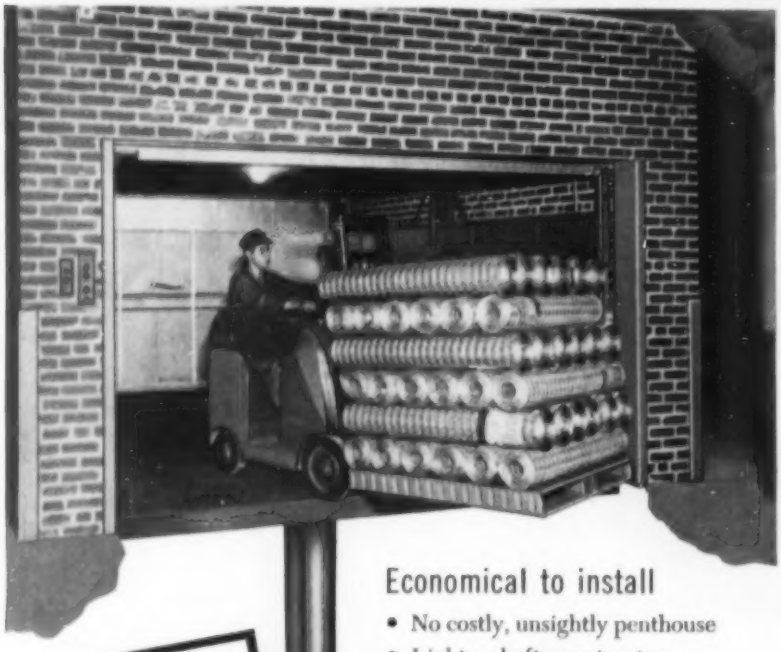

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Boxscore on UC

Survey of workers idled by plant shutdown shows big variation in duration of jobless pay benefits.

When employees are thrown out of work by a plant shutdown, what is their experience under the unemployment compensation system? How many locate new jobs and how soon? How many use up their allowed benefits—and who are most likely to?

The Commerce & Industry Assn. of New York, Inc., sought answers to these questions when Alexander Smith, Inc., closed its carpet factory in Yonkers in 1954 and laid off 1,874 employees. The association analyzed the UC records of the former carpet workers and came up with these conclusions:

• There is a direct relationship between age and average duration of unemployment benefits. Of 533 idled employees over 60, 248 collected checks for the full limit of 26 weeks, and the 497 who claimed UC benefits (36 did not) averaged 22 weeks. In other age groups, those between 50 and 60 averaged 19.2 weeks of benefits; 40 and 50, 16.4 weeks; 30 and 40, 14.1 weeks; and 20 and 30, 12.5 weeks, with none collecting for the full 26 weeks.

• Family responsibilities had a marked effect on the duration of benefits. Single persons averaged 20.3 weeks; those married, with no children, 19.1 weeks. The average for married workers with children ranged from 16.1 weeks for those with one child to 13.1 weeks for those with four.

• Married women generally supported by their husbands did not seek work as readily as single women.

• Single women were slower to find new jobs than single men. The women without dependents averaged 20 weeks of benefits and 40.7% drew checks for the allowable 26 weeks. The single men averaged 18 weeks and 21.4% the maximum period.

• Of the 1,874 workers in the carpet plant, 303 filed no claims for UC —indicating either that they had got new jobs promptly or had withdrawn completely from the labor force. Of the 303, 212 were married men, mostly with children. They represented about one-fifth of the total number of married men formerly on the payroll.

According to the Commerce & Industry Assn. survey, the average weekly pay of the carpet workers had been $72.21, and the unemployment compensation they received averaged about $29 a week. At the time, the New York maximum benefit was $30 a week; it is now $36 a week. END

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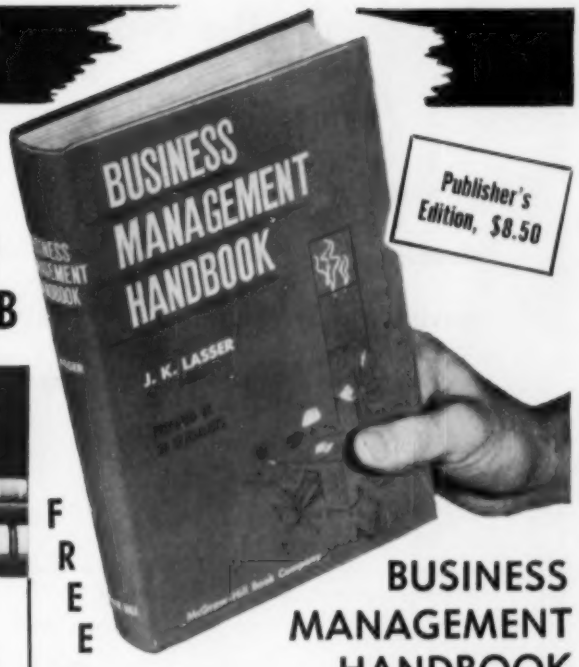

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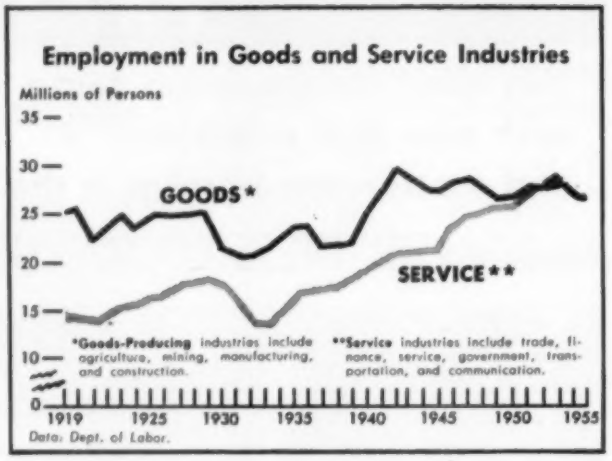
Suddenly, the Working Picture Is Upside-Down

Workers in goods-producing industries once vastly outnumbered service workers; now they trail in employment figures. They may continue to lose ground.



In the last 15 years, all manufacturing employment rose 65%. Durable goods employment is up more than 100%; now is 57% of manufacturing total. Nondurable goods employment climbed only 30%; is 43% of total.

The Shifting Employment Pattern

The U.S. work force has turned an employment somersault climaxing a long trend that began after World War I. For the first time, there are fewer blue-collared factory workers than there are white-collar workers and service employees.

The two big employment shifts shown in the charts above combine to give today's work pattern a new look:

• Goods-producing industries have yielded first place in furnishing jobs to the service industries.

• More people now work in durable goods manufacturing—such industries as metal products, machinery, and transportation equipment—than in the nondurable goods industries, such as food, textiles, rubber products, etc.

• **Leaders**—These and other labor force changes are clearly set out by Dr. Seymour Wolfbein of the Bureau of Labor Statistics in a paper delivered to the American Statistical Assn. Wolfbein, an authority on work force characteristics, lists three industries—electrical machinery, other machinery, and transportation equipment—as responsible for most of the gains in durable goods jobs. The three together now claim more than one out of every four factory workers.

You can see how softgoods have slipped as job providers in another set of figures, covering the three industries—apparel, food, and textiles—where softgoods employment has fallen off the most. In 1939, these three industries accounted for one out of every three factory workers. Today, they can claim only one out of every five.

• **Contradictions**—But these over-all shifts don't tell the whole story. Even when broad industry classifications show little change from year to year, there may be radical shifts in the smaller industry groups within the larger category. Or the trend in a smaller group may run directly counter to what's happening to the larger category as a whole:

• Transportation employment overall is falling off. Yet trucking and air transportation have had a sharp rise in jobs since World War II.

• Mining employment, too, has dropped as a whole. But in nonmetallic mining, and in petroleum and gas, jobs are now more plentiful.

• **The Big Shift**—All these smaller upheavals and apparently contradictory trends balance out into the broad pattern of change—where the most significant shift is probably the fact that more people now work in service industries than in goods-producing industries.

Many factors account for this shift

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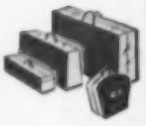

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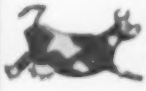

TOYS We make millions of pieces of clean-edged cut-outs for the toy industry every year. Even bright, lasting color Panels are supplied. Along with tricky shapes and odd sizes. Upson often combines operations to reduce your costs even more.

Use Upson Panels for photo mounting, mirror backs, spool ends, gaskets, office partitions, 1001 other uses. Upson's 45 years' skill and experience assure you proven quality you can trust. *Tell us your needs.* We can probably help solve your problem, and save you money!

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to service industries. One, of course, is the steady rise in productivity. You can mechanize a factory operation more easily than you can, say, a trucking line or a string of cafeterias. Bureau of Labor Statistics figures on manufacturing productivity show an average annual increase ranging from 0.5% to 1.5% from 1939 through 1947, and from 3.0% to 3.6% from 1947 through 1953 (BW—Dec.10'55,p66).

Since 1953, greater mechanization and automation have brought an even more phenomenal jump. "Experimental and unofficial" BLS data indicate that manufacturing output per man-hour may have climbed some 10% between 1953 and 1955—with more than half of the increase occurring in 1955. This could go a long way toward explaining the sudden drop in goods-producing employment.

• **Service Growth**—Some service industries, too, feel the impact of automation and increased output per man-hour. Finance, insurance, and government offices are now using more and more labor-saving machines. If productivity were the only factor at work, you could expect employment in service industries to fall, too.

But there are other forces—notably the automobile—working the other way. As more automobiles are produced and purchased, commuting from a smaller town to a larger one becomes more common. Suburban areas with little or no goods producing industry are multiplying around metropolitan centers. These strictly "bedroom" towns increase demand for personal service industries, for trucking to bring in supplies, and similar lines.

A host of other factors feed the growth of service industries:

• The over-all growth of population, adding an ever-larger number of people who require services.

• Shorter working weeks, with more leisure time, longer vacations, more paid holidays.

• A higher earning level, with more to spend on non-essentials and services.

• **What's to Come**—What can you expect as a result of this reversal in the employment pattern?

• Both unemployment and employment figures, particularly in manufacturing, could tend to be more volatile. This will be true as the durable goods proportion of manufacturing employment increases. Historically, durable goods manufacturing has been highly sensitive to changes in the economic climate; despite anti-cyclical devices that now exist, durables have continued to be the first to be hit by recession in recent years. Sometimes it has been the only segment to feel the pinch. Thus, as a greater number of workers go into durable goods industries, a wider segment of the labor force could become subject to rapid, and possibly violent, employment fluctuation.

• Little change in the labor picture is likely—at least for a while. Strong unions thrive when the industry in which they have jurisdiction grows. When the industry sags, usually the union does, too. John L. Lewis' United Mine Workers, once a mighty bull in the labor movement, now resembles more an aging steer. The reason is that UMW's pasture has been a declining industry—in terms of output and, especially, in terms of employment—while other industries and unions have been growing.

On the other side of the picture, the employment trend suggests that unions now strong are likely to take on added strength. A continuing rise in durable goods employment will increase the power of such AFL-CIO unions as United Auto Workers, United Steelworkers, International Assn. of Machinists, and others. Job figures in trucking augur no sudden crimp in the power of Dave Beck's International Brotherhood of Teamsters.

Looking to the more distant future, though, rising employment in the service industries, with an accompanying increase in the number of white-collar workers, will have repercussions in the labor movement, as these workers become targets for union organizing drives. **END**

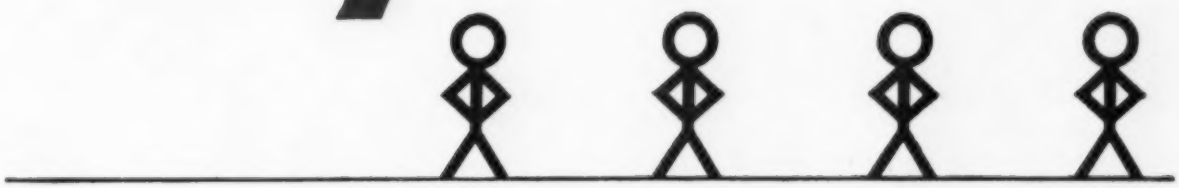
Change in Employment; 1939-1955

Service	Up 177%
Government	Up 158%
Construction	Up 146%
Trade	Up 129%
Finance	Up 108%
All Nonagricultural Employment	**Up 83%**
Manufacturing	Up 57%
Transportation and Public Utilities	Up 9%
Mining	Down 34%

Data: Dept. of Labor.

low-cost life insurance for your

key men



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... A "Select" class of policies at low cost.

In countless ways your key men *are* your business. An able vice president or treasurer, a pioneering technician, an inspired sales manager, a chief engineer — without any one of them the swift drive of production, your sales curve, the financial security of your business, may be seriously impaired.

John Hancock has streamlined and simplified life insurance, and is enabling wise managements in every field to safeguard *at low cost* their stake in valuable key personnel.

Business Security life insurance, payable to your corporation or firm, can cover losses resulting from the death of an important key man. Or when he lives to retirement, cash values can provide retirement funds.

We urge that you discover *now* how John Hancock Business Security life insurance can protect the living assets of your business.

For full particulars consult your John Hancock agent

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letter perfect!

Your secretary bubbles with pride for reasons you and she know best. Modern, prestige materials – letterheads for instance – are part of the reason. For your letters, contracts or any important record, Parsons bond or writing papers with all-new cotton fibers will truly reflect her pride (and yours). Your words on Parsons permanent, prestige business papers will be letter perfect.

Parsons PAPER

WRITE ON YOUR BUSINESS LETTERHEAD FOR PORTFOLIO 181, PRESTIGE LETTERHEAD DESIGNS, BY LESTER BEALL. PARSONS PAPER CO., HOLYOKE, MASS. © PPCO 1956

Balk at Lie Detector Tests

Sunbeam Corp. wants its employees in the shaver department, hard hit by pilferage of small parts, to take lie tests. Machinists bring "unfair labor practice" charges.

Can a company that has suffered heavy losses through pilfering require employees to take periodic lie detector tests? This question is now before the National Labor Relations Board in Chicago, in a case that's getting close attention from electronics manufacturers.

Pilferage is a major problem for many companies that manufacture small products or use small parts–such as motors or transistors. Thefts annually add hundreds of millions of dollars to business costs; for several years they have been on the rise (BW–Dec.4'54, p128).

• **Sunbeam's Case**–Sunbeam Corp., manufacturer of electric razors for men and women among other products, has been plagued by thefts for three years. It increased plant guards, wrote rules against carrying purses or parcels into the shaver department (worst hit by pilferage), and built a wire fence to keep out those not employed in the department. But all this made little difference.

The problem faced by Sunbeam was not so much the stealing of finished razors (though many have been slipped out) as the theft of small parts. These are hard to detect in routine checkouts; they can be hidden in work clothing.

When a number of workers are involved, a theft ring can steal parts and assemble them at home into complete razors–to be sold in Chicago and as far away as Indianapolis for $10 each, less than the Sunbeam factory cost of between $17 and $18.

One such ring, broken in 1954, was found to have 1,000 razors assembled from stolen parts.

• **Lie Detectors**–When other alternatives failed, Sunbeam notified shaver department employees that it was making periodic lie detector tests a condition of their continued employment in the department. Those who balked at tests would not be discharged but would be shifted to other departments in which there would be little chance for pilferage. In the future, the corporation added, nobody would be hired for the shaver department without first agreeing to submit to occasional lie detector tests.

The Sunbeam union, the International Assn. of Machinists, filed quick objections. It accused Sunbeam of violating "employees' civil and personal rights," and of violating the union contract by making unilateral changes in work conditions. Further, IAM charged that although Sunbeam had assured shaver department workers that none would be fired for refusing to take lie detector tests, the new rules specify that refusal to take a test under order "shall be just cause for immediate discharge."

While admitting that pilferage problems do exist, IAM filed unfair-labor-practice charges with NLRB. NLRB's Chicago office is investigating.

• **Wide Interest**–The importance of the test case can be seen in the interest with which it is being watched in the electronic industry. Sunbeam has received many requests for advice on how its program (temporarily suspended, pending NLRB action) can be adapted to other operations.

Noting this, IAM Grand Lodge–or international–officers moved into the Sunbeam case; they don't want to see lie detector requirements extended through industry. They say that would make "all of the innocents . . . suffer for the wicked."

LABOR BRIEFS

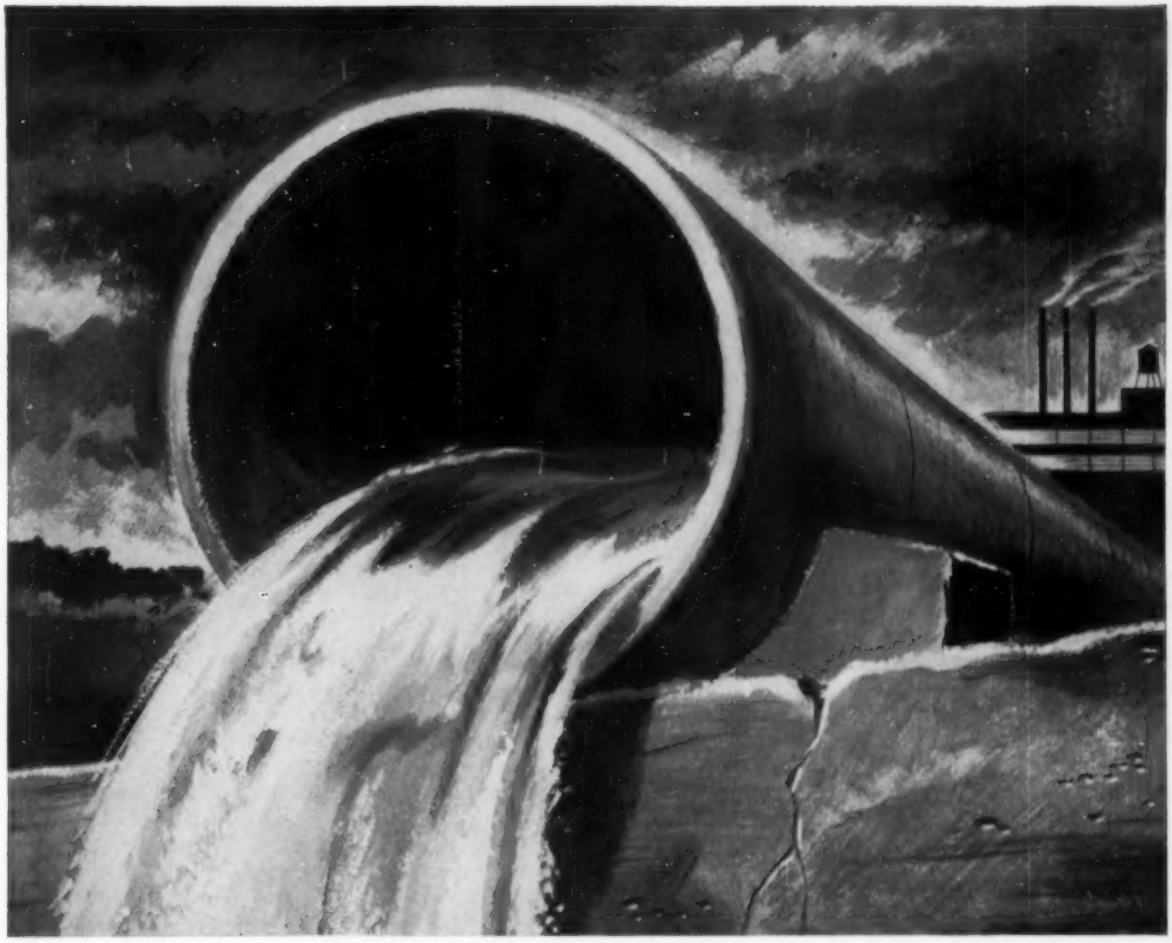
No wage demand will be made by the International Ladies' Garment Workers' Union in the Chicago coat and suit industry this year. The union accepted a statement by 35 employers of 1,700 garment workers that a pay increase would make it impossible for them to keep prices in line with those of New York competitors.

•

Raises of 6% or a minimum 15¢ an hour for production workers or $26 a month for salaried employees spread through the oil industry last week in refineries not under union contracts. The same increase has been offered in union-contract plants, and a number have rejected it. . . . **On the railroads** 4,500 yardmasters employed by 95 carriers got $43-a-month raises last week.

•

Indictment of United Auto Workers for alleged illegal political activities was dismissed in a Detroit federal court this week. A grand jury had held that political talks on UAW radio news program constituted an illegal use of union dues to back candidates for office. The court held that the union was only exercising its right of free speech.



When water is the problem . . . Hall has the answer

Hall Laboratories Water Service Saves Manufacturer $100,000 Yearly

A paper mill's waste water disposal system had been causing stream pollution. Hall Laboratories recommended a corrective program that not only cleaned up the water and conserved it for re-use, but recovered usable pulp fiber at an estimated saving to the mill of $100,000 a year.

This is one example in thousands, where Hall helps manufacturers, big and small, find the most economic solution to their water problems. Hall services are available to help you with specific water troubles, or on a yearly contract basis for continued water supervision.

Hall has specialists, not only in the conditioning of water, but also in the use of water in specific industries. It is therefore in a most effective position to provide consultation and service on *any* industrial water problem, including: procurement, preliminary treatment, the generation and use of steam, cooling water, process water, waste water disposal and over-all water management.

Hall offers plant-wide water service for every industrial water problem

By exploring the water problems of your plant as a *whole*, Hall service engineers can help you uncover hidden waste and minimize your over-all plant water costs. No action of water escapes the scrutiny of our "water detectives."

Corrosion or contamination, for instance, can cause hidden costs in your power bills, maintenance and replacement of equipment, product spoilage or loss of production. Hall serves more than 2,000 industrial and commercial organizations by helping them solve these and many other water problems.

Hall can help *you*. Write for Bulletin GSP-901B which discusses the services of Hall Laboratories.

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In Washington

• • •

Hilton Chain Bows to Antitrusters

Agrees to Sell Two Hotels

Hilton hotels in two cities go up for sale soon. Hilton Hotels Corp. agreed to sell the Mayflower in Washington, D. C., and either the New Yorker or the Roosevelt in New York as part of a consent decree signed this week. This ends the government's antimerger case against the hotel chain.

Hilton also is prohibited from buying additional leading hotels in Washington, New York City, St. Louis, or Los Angeles until 1961, without first notifying the Antitrust Div.

The government last April charged that Hilton violated the antimerger law when it bought the Hotel Statler Corp. chain, and asked a court to order sale of the Statler hotels acquired in the four named cities.

But Hilton sold one of its hotels in Los Angeles and one in St. Louis before the consent decree was signed. And the other two hotels now ordered up for sale were Hilton-owned before the Statler acquisition. Thus, Hilton keeps all the Statler hotels, and will now have four hotels in New York City, two in Los Angeles, and one each in St. Louis and Washington.

• • •

New Bill Plugs Loophole

In Bank Antimerger Law

Early approval of the first new antitrust law in this session of Congress now seems certain. The bill to plug a loophole for banks in the antimerger law passed the House this week without objection. The Senate, which now must act on the bill, is expected to approve the amendment, too.

The bill would permit the Attorney General and the Federal Reserve Board to block any bank merger—whether by purchase of stock or assets—that may substantially lessen competition or tend to create a monopoly. The present antimerger law that applies to nonbanking corporations does not cover bank merger if accomplished by acquisition of assets. In the face of a steady increase in bank mergers, the bill to close this gap has the support of the federal banking and antitrust agencies, as well as of Pres. Eisenhower.

• • •

AEC Opens Some of Its Books

To Speed Peacetime Uses of Atom

Industry's access to atomic information needed for development of peaceful uses of the atom promises to be the big atomic issue of the year.

In favor of complete declassification of all but military technology is Sen. Clinton P. Anderson, Democratic chairman of the Joint Congressional Committee on Atomic Energy. Anderson has been hammering hard at Adm. Lewis E. Strauss, Atomic Energy Commission chief, who isn't willing to go nearly so far.

At committee hearing this week, Strauss said that "all but a small amount of information" on the peaceful uses of the atom will be available in a month or so as a result of AEC's review of some 25,000 reports now classified. So far, about 9,000 have been declassified, 6,400 have been classified as confidential, and 9,500 retained as secret. People from "responsible companies" with AEC clearance cards will be able to see the declassified reports. Others can see classified material on a "need to know" basis. Strauss says there's no indication that AEC's system has delayed peacetime reactor development (page 30).

But Anderson wants all 25,000 reports available to anyone who wants to see them—even those being classified as confidential and secret—so long as they don't bear on military applications.

This week, AEC set up an inspection room in an unclassified area of its headquarters where reactor license applications may be examined by the public.

• • •

Industry Bands With Government

To "Sell" Scientific Careers

Top industry and government scientists in the Washington area are doing something practical about stirring high school student interest in scientific careers.

As many as 1,600 of these scientists will take over at least half a day of "teaching" more than 400 science classes in the area schools while the science teachers themselves attend a national convention of science teachers in the Capitol next month.

Actually, the scientists—from top agencies such as the National Bureau of Standards and from industrial companies such as Melpar, Inc.—will be urging bright students to go ahead with a career in science.

The program is being organized by a joint committee of Washington's scientific societies, with the help of the National Science Foundation. The idea is to counter the low prestige that scientific careers seem to have with high school and college students—thus putting the U.S. in a less favorable position for technical advancement as compared with the Russians.

• • •

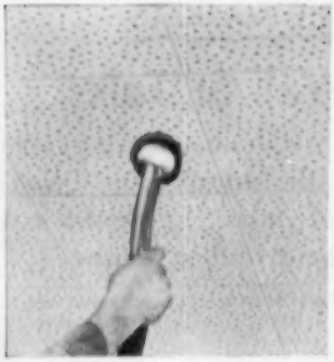
Polio Vaccination Program

Extends Its Coverage Group

Congress completed action this week on a 16½-month extension to June 30, 1957, of the government's polio vaccination program. The law, continued in the form originally enacted last year, provides government financial aid to supply Salk vaccine to persons under 20 years of age and to expectant mothers.

Congress appropriated $30-million for the current program. Pres. Eisenhower is seeking an additional $30-million for the extension part of the program.

Ease of cleaning helps make this beautiful Travertone ceiling practical for the lobby of Southern Fire Insurance Company, Durham, N. C.



VACUUM CLEANING. Any conventional brush attachment can be used. This Cushiontone ceiling can also be wiped clean with a damp cloth.

SPRAY PAINTING. Direct spray against the surface from all directions to coat all sides of bevels, perforations, and fissures. If desired, Armstrong materials can also be brush painted.

Is it costly to maintain sound conditioning?

Do the perforated and fissured surfaces of acoustical materials create cleaning and painting problems?

A modern sound-conditioning ceiling generally costs no more to maintain than does a plaster ceiling. Over the long run, it saves you money because an acoustical ceiling won't crack and doesn't require periodic repair. Once installed, an acoustical ceiling becomes a permanent part of the building.

Dust is never a problem. Since the surface of an acoustical material is smooth and prepainted, dirt does not readily cling to it. Nor is dust attracted to the noise-trapping holes or fissures in the tiles because these contain a barrier of still air.

No special skill or equipment is required if an acoustical ceiling occasionally needs cleaning or repainting. Any building maintenance crew or painting contractor can do the job quickly.

Neither cleaning nor repainting has any effect on the efficiency of top-quality acoustical materials. All materials in the Armstrong line have smooth surfaces and can be cleaned or repainted as often as necessary without losing their noise-absorbing properties. In painting tests, for example, Armstrong Cushiontone showed no loss of efficiency after 22 coats of paint. **For details** on the ease and economy of maintenance, and the many other features that make Armstrong acoustical materials a wise investment, see your Armstrong Acoustical Contractor. Also write for the free booklet, "Quiet at Work." Armstrong Cork Company, 5602 Indian Road, Lancaster, Pennsylvania.

Armstrong ACOUSTICAL MATERIALS

Cushiontone® • Travertone* • Arrestone® • Minatone® • Corkoustic® • Crestone* • Perforated Asbestos Board

*TRADE-MARK

Wall St. Talks . . .

. . . about Revlon's vogue . . . the margin ante . . . municipal yields . . . the dip in Big Board trading volume.

The hottest new issue around has been the 373,900 shares of Revlon, Inc. (BW–Jan.28'56,p62), sold to the public in December. The shares have shot to $28 bid over-the-counter, from the original offering price of $12, and from $18 bid at yearend. The zoom has roused SEC curiosity, but many Streeters wonder why, since much of the rise could be accounted for Revlon's annual report. This showed that 1955 sales almost doubled the previous year's and earnings were up 170% to $2.62 per share.

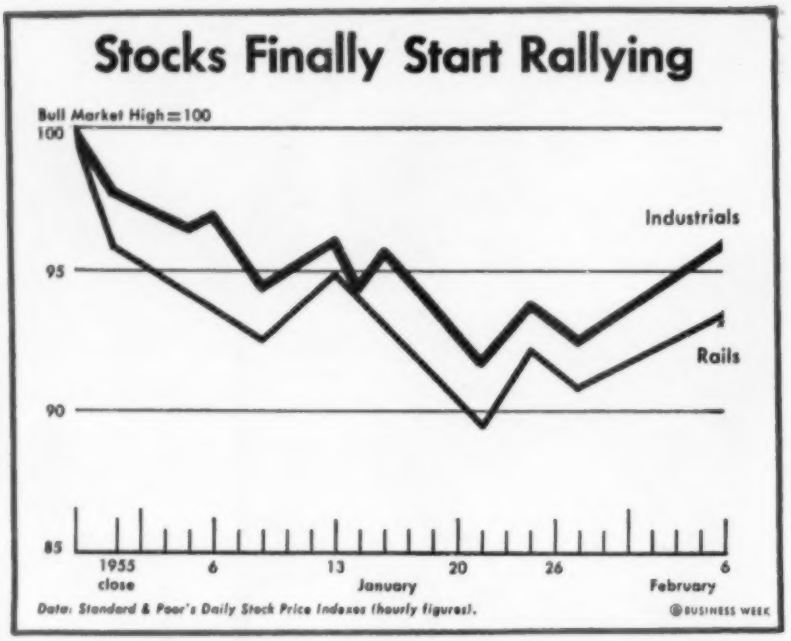
An ounce of prevention: The Big Board has boosted the amount of cash needed to open a margin account with its members. Starting Feb. 13, a customer must put up $1,000, instead of the $500 required since the old $1,000 ante was dropped in 1949. A Big Board spokesman calls it "simply an attempt to keep people out of the stock market who can't afford to be in it."

Rumor roundup: Hupp Corp. will soon acquire Gibson Refrigerator Co. . . . Corn Products Refining is considering "some interesting company purchases." . . . On the other hand, Schick, Inc., denies rumors that it's for sale. Chmn. Kenneth C. Gifford says the company has lately turned down three bids.

Municipal bond yields have started to edge upward. That means prices are slipping a bit after weeks of comparative firmness. The market is getting ready for its first real test of 1956, with around $500-million in offerings scheduled for the next 30 days.

Trading volume on the Big Board since Jan. 1 has slipped 39% below 1955 levels. Through Feb. 6 the score was 91-million shares in 1955 and 55.5-million shares in 1956.

Market letter gleanings: "While it's dangerous for investors to become overoptimistic as . . . in 1929, it is also dangerous to underestimate the forces at work." (Goodyear & Co.) . . . "Investors would . . . do well to avoid becoming overenthusiastic about the . . . recent minor uptrend." (Shearson, Hammill & Co.) . . . "Individual issues and groups will continue to be very mixed." (Walston & Co.)



But It's Not Unanimous

Early this week, the stock market rally pushed to within 4%, or around 20 points, of the bull market high set last November. Although the rally was conceded to be technical and selective (page 154), Wall Streeters were heartened by the rebound.

As with most of the upward kicks since last October, this one was short-lived. Six days of rise—including a stand-off on one occasion—were broken by a setback on Tuesday, when many individual gains were wiped out in one day's trading. On Wednesday, prices slumped even lower.

This week, Wall Streeters seemed more interested in the news on the front page of their papers than in the financial page itself—and, as usual, that's what the market's action reflected.

• **President's Decision**—The biggest factor in the market right now is Pres. Eisenhower's pending decision on whether to run again. At his Wednesday press conference, the President indicated his decision would be announced before the end of the month.

Uncertainties in the political outlook are generally blamed for the lethargic performance of the market in recent weeks. January trading volume was 40% below January, 1955, which featured half a dozen days of better than 4-million shares. Most Streeters don't expect any pickup in volume until the President makes known his intentions—if then.

Some Streeters are saying that, in the September sell-off, the market discounted the chance that Eisenhower wouldn't run again, and they observe that "the market never discounts anything twice." This could be. But if the President should choose not to run, the political picture would be unclear at least until convention time—and there is plenty of Wall Street opinion that says the Republicans will have very tough sledding with any other standard bearer.

• **Gas Bill**—Other front-page news also reacted strongly on the market. The Senate passed the controversial natural gas measure, exempting producers from Federal Power Commission rate-setting controls, and now the measure is before the President (page 34).

The market had obviously expected passage of the bill. Shares of leading producers such as Phillips Petroleum, Pure Oil, and Standard Oil (Ind.) had been rising all last week, when the debate in the Senate was at high pitch. When the bill was finally passed, most of the producers' shares sold off—again, Streeters said, an example of how the market doesn't discount a thing twice.

Even though there was some profit-taking in natural gas shares immediately following passage of the Fulbright-Harris measure, the oils as a group have been the best performers in this young year. Last week, the oils accounted for more than 22% of the dollar volume of all trading on the Big Board. As a

COMBUSTION ENGINEERING now building

NUCLEAR ENGINEERING AND DEVELOPMENT CENTER

On a 530-acre site in Windsor, Connecticut, Combustion Engineering is now building a Nuclear Engineering and Development Center. In addition to the Engineering and Administration Building, shown above, there will be a critical experiment facility for studying the physics and nuclear characteristics of reactor cores, a "hot" laboratory and a fuel element fabrication plant, together with related metallurgical, chemical and physical testing laboratories.

This multi-million dollar project, for which Stone & Webster Engineering Corporation are the architects and engineers, is scheduled for initial operation late this year and completion in early '57. In conjunction with new nuclear facilities recently placed in operation at the Company's Chattanooga, Tenn., plant, the Windsor plant will enable Combustion

to design, develop and manufacture complete nuclear power reactor systems

Heavy components such as reactor vessels, boilers, plugs and shields will be manufactured at Chattanooga. Reactor cores, including fuel elements and control rods, will be produced at Windsor.

The new nuclear building at Chattanooga includes such equipment as a 15,000,000-volt betatron for fast X-raying of thick plate and welds; large precision machine tools capable of handling work up to 20 feet in diameter with accuracies comparable to those required in watchmaking; and cranes to handle loads in excess of 300 tons. A new dock is equipped to handle reactor vessels too large and heavy for rail or highway shipment. By virtue of these facilities, Combustion becomes the *first company in the world* to possess equipment especially designed for the manufacture of heavy reactor components and to be able to ship them by water to virtually all river and coastal ports.

The panel at the right reveals the Company's current activity in the nuclear field. With the new facilities now available or in process, and others recently authorized, Combustion is prepared to achieve the same position of leadership in nuclear power that it has long occupied in the field of conventional power generation.

C-E NUCLEAR WORK 1955-56

Contract to design, develop and build complete nuclear reactor system for a submarine. *(This contract made Combustion the country's third major contractor to AEC on the naval reactor development program, and the first to undertake such a contract with its own facilities.)*

Contract to design and build major reactor components for U.S.S. Seawolf.

Contract to design and build major reactor components for large naval surface ship.

Contract to design and build major reactor components for Submarine Advanced Reactor and Submarine Fleet Reactor Systems.

Contract to design and build major reactor components for Shippingport plant to be operated by Duquesne Light Company. *(This will be country's first commercial size nuclear power plant.)*

Contract to design and build major reactor components for Atomic Power Development Associates. *(This fast breeder reactor, to be operated by Detroit Edison Company, is regarded as the most advanced type projected to date for a commercial size power installation.)*

Agreement with AEC for design and evaluation studies of both large and small reactors and of fuel elements and their fabrication.

COMBUSTION ENGINEERING

Combustion Engineering Building
200 Madison Avenue, New York 16, N. Y.

8-898

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ALLEN-BRADLEY!
46.5% of all relays were A-B

Almost *half* of the relays that could be checked on 849 machine tools exhibited in Chicago's International Amphitheatre were made by Allen-Bradley. What an endorsement of the reliability obtained with this line of relays!

Allen-Bradley solenoid relays are the ideal choice for machine tool and similar sequence operations. These small but rugged relays have only *one* moving part. Their simple design assures consistency of performance . . . guarantees millions of trouble-free operations.

Bulletin 700, Type BX 4-pole Universal Relay. Can be easily changed from normally open to normally closed contacts by merely reconnecting the terminals.

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A-B Quality

ALLEN-BRADLEY
QUALITY
MOTOR CONTROL
The Preferred Line

group, the oils closed at their all-time high last Friday. The biggest gainer was Standard Oil (N.J.), which announced sales and earnings at new peaks last year and issued some bullish statements on the near-term outlook.

• **Rockets and Cars**—Aircrafts also got a boost from front-page news. Stepped-up spending on guided missiles had already been ticketed in the budget. The first big contracts of the year for new planes were announced last week, including one of $303-million to Boeing for B-52 bombers. The furor over the resignation of the Defense Dept.'s missiles chief is expected by some Streeters, if not in Washington (page 31), to result in a stepped-up rate of spending on guided missiles.

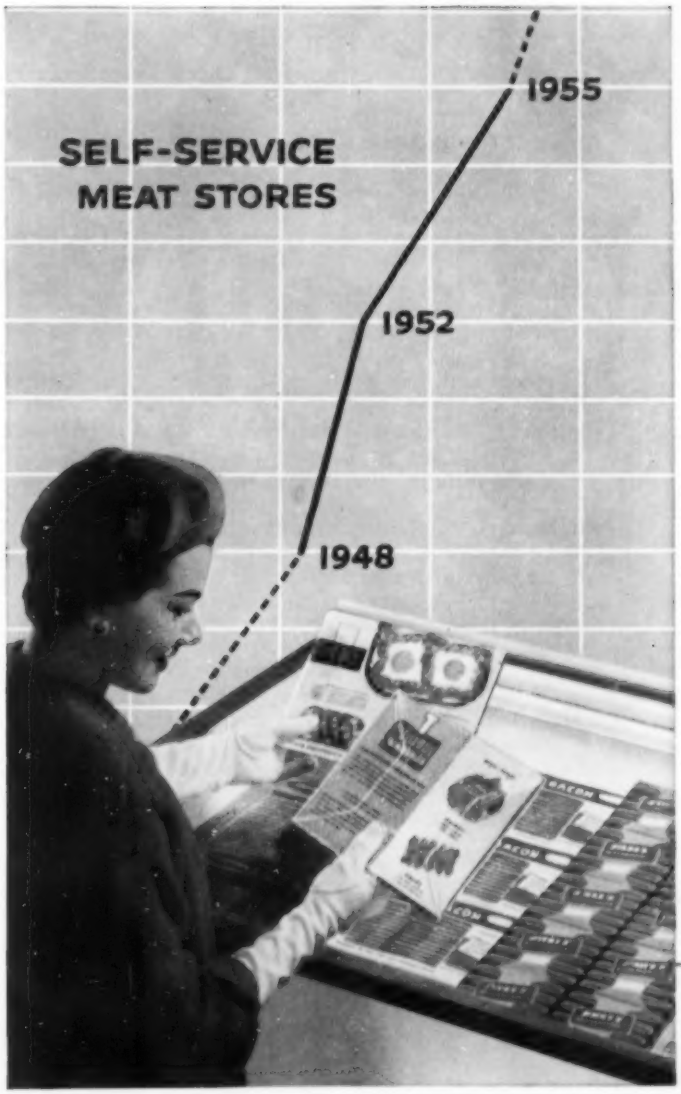
While aircrafts and oils were reacting to front-page headlines, another important group wasn't doing so well. Autos have been performing lackadaisically in a market depressed by recent figures on short work weeks and record dealer inventories. General Motors announced record earnings but, being expected, this didn't have much effect. Chrysler continues to trade around 25% below its high—and only 15% above its 1955-56 low. The general slump has even spread to the over-the-counter market, where Ford was trading at its lowest levels yet, around $61.50 per share, or $3.00 below its offering price less than a month ago.

The Varied Showing Within an Index

	Bull Mkt. High	*Mid-Jan. Low*	*Rally Recent Level*	*Recent Level vs. Bull Mkt. High*	*Recent Level vs. Mid-Jan. Low*
STANDARD & POOR'S 50-DAILY INDUSTRIAL STOCK PRICE INDEX (1926 = 100)	493.5	455.3	473.8	− 4.0%	+ 4.1%
COMPONENTS					
Allied Chemical & Dye	$122.75	$107.50	$109.87	−10.5%	+ 2.2%
American Airlines	29.12	23.25	23.25	−20.2	-0-
American Can	49.25	44.00	46.25	− 6.1	+ 5.1
American Radiator & Stan. Sanitary	27.37	21.62	21.87	−20.1	+ 1.1
American Smelting & Refining	58.37	46.75	50.37	−13.7	+ 7.7
American Tobacco	84.12	78.50	82.87	− 1.5	+ 5.6
Armour & Company	18.00	16.00	16.00	−11.1	-0-
Bethlehem Steel	169.50	148.75	152.00	−10.3	+ 2.2
Burroughs Corp	34.25	28.50	30.50	−10.9	+ 7.0
Celanese Corp	58.25	18.62	18.75	−67.8	+ 0.7
Chrysler Corp	101.50	74.62	75.37	−25.7	+ 1.0
Cincinnati Milling Machine	42.12	39.25	40.50	− 3.8	+ 3.2
CIT Financial Corp	50.37	43.00	44.12	−12.4	+ 2.6
Commercial Credit	57.75	50.00	52.50	− 9.1	+ 5.0
Dow Chemical	60.50	57.00	58.00	− 4.1	+ 1.8
Eastman Kodak	87.87	75.75	79.00	−10.1	+ 4.3
General Foods	96.25	87.12	91.50	− 4.1	+ 5.0
General Motors	54.00	43.12	44.50	−17.6	+ 3.2
Goodyear Tire & Rubber	66.25	60.00	62.75	− 5.3	+ 4.6
International Harvester	41.12	36.37	37.87	− 7.9	+ 4.1
International Nickel	87.62	78.00	80.12	− 8.5	+ 2.7
International Paper	117.50	108.25	110.00	− 6.4	+ 1.6
Johns-Manville	97.00	82.00	85.25	−12.1	+ 4.0
Kennecott Copper	129.50	113.00	121.25	− 6.4	+ 7.3
Loew's, Inc	24.62	18.87	21.37	−13.2	+13.2
Lone Star Cement	74.75	64.25	73.75	− 1.3	+14.8
May Dept. Stores	44.25	41.00	41.87	− 5.4	+ 2.1
Monsanto Chemical	52.62	41.12	45.12	−14.3	+ 9.7
National Biscuit	45.87	38.37	37.75	−17.7	− 1.6
National Cash Register	47.00	35.12	36.50	−22.3	+ 3.9
National Dairy Products	44.75	34.62	39.25	−12.3	+13.4
Radio Corp	55.37	42.12	43.12	−22.1	+ 2.4
St. Joseph Lead	55.00	43.50	45.12	−18.0	+ 3.7
Schenley Industries	27.37	20.00	19.87	−27.4	− 0.6
Sears Roebuck & Co	40.87	32.50	34.50	−15.6	+ 6.2
Standard Brands	43.87	41.50	42.25	− 3.7	+ 1.8
Standard Oil (Cal.)	98.75	87.50	93.00	− 5.9	+ 6.3
Standard Oil (N. J.)	158.12	142.12	158.12	-0-	+11.3
J. P. Stevens	49.37	25.50	26.12	−47.1	+ 2.4
Texas Co	126.50	115.75	121.00	− 4.3	+ 4.5
Twentieth Century Fox	31.62	21.50	24.25	−23.3	+12.8
Underwood Corp	43.12	35.12	36.87	−14.5	+ 5.0
Union Carbide & Carbon	116.25	105.25	105.37	− 9.4	+ 2.1
United Aircraft	74.25	63.37	69.75	− 6.1	+10.1
U. S. Gypsum	67.00	55.25	60.37	− 9.9	+ 9.3
U. S. Rubber	55.12	49.75	54.12	− 1.8	+ 8.8
U. S. Steel	62.25	51.37	54.62	−12.3	+ 6.3
Westinghouse Air Brake	32.62	29.00	29.87	− 8.4	+ 3.0
Westinghouse Electric	83.25	57.12	59.75	−30.5	+ 1.3
F. W. Woolworth	54.75	47.62	49.00	−10.5	+ 2.9

The American Market: a Look Ahead

How meat sells itself



Mrs. Shopper doesn't wait to be waited on in the modern meat market. She steps right up and serves herself.

Without help? Not at all. When she picks up a package, she has more help than she *ever* had. Modern packaging not only whets her appetite with realistic, colorful pictures of what she's getting—it gives her helpful suggestions on how to prepare her purchase.

Does she like this self-service . . . this package salesmanship? The figures speak for themselves:

Seven years ago there were only 178 stores in the whole country with complete self-service meat counters. Today they exceed 12,000. Or take that temple of serve-yourself, the American Supermarket—it is estimated that for every ten supers today, three *new* ones are planned for the months ahead!

What then?

The signs are clear, *and they all point up.* To still more food stores, more self-service. To more dollars in the food budget—perhaps 90 billion a year by 1960. To more *sell* in the package: more reach-out enticements, more built-in convenience.

It's a tall order for Marathon, America's largest supplier of food packaging. But then Marathon has some tall advantages. For one, Marathon has been working on tomorrow's packages long before today. For another, Marathon controls every step in package making, from the tree to the finished product.

MARATHON CORPORATION
Menasha, Wisconsin

In Canada: Manchester Paper Box Limited, Toronto

Things look bright where MARATHON *goes to market*

Marathon packages brighten the stores . . .

Northern home products lighten the chores

FOR BUSINESS WEEK ADVERTISERS IN 1956...

a continuing program of STARCH

AS AN AID TO

AS A CONTINUING SERVICE to advertisers, Business Week has again engaged Daniel Starch and Staff to study the readership of advertising in Business Week during 1956.

In response to a recent poll by Business Week, leading advertisers and their agencies voted strongly in favor of continuing the Starch Readership Program. Business Week alone among the general-business magazines provides advertisers the opportunity—through Starch Reports—to measure the readership of their own and other advertisements in its pages.

Starch Readership Surveys, conducted by personal interviews among Business Week readers, are made available by Daniel Starch and Staff to advertisers and agencies on a regular subscription or per-copy basis.

YOU ADVERTISE IN BUSINESS WEEK

A McGraw-Hill Publication • Member—Audit Bureau of Circulations

READERSHIP REPORTS

EFFECTIVE ADVERTISING

THESE ISSUES OF BUSINESS WEEK WILL BE "STARCHED" IN 1956.

JANUARY 7-14-21-28	FEBRUARY 4-11-25	MARCH 3-17-31
APRIL 14-21-28	MAY 5-19-26	JUNE 9-16-23-30
JULY 7-14-21-28	AUGUST 4-11-18-25	SEPTEMBER 1-22
OCTOBER 6-27	NOVEMBER 3-17-24	DECEMBER 1-8-15-22

The issue dates listed at left have been selected jointly by Business Week and The Daniel Starch Organization in a manner that will provide cycle advertisers the best opportunity to study the readership of their advertising campaigns in Business Week.

How Business Week Starch Scores Are Used by Advertisers and Advertising Agencies

There are many practical uses for the Starch Reports on advertising readership that are available to Business Week advertisers and their agencies. Here's how they say they use them:

ADVERTISERS

Guide to copy and layout
Comparison with competitors' ads
Comparison of ads in a campaign
Indication of which ads to repeat
Measure of advertising effectiveness
Indication to management of value of advertising
Comparison of present and past techniques
Comparison of Starch scores and inquiries

AGENCIES

Comparison of client's ads with competitors'
Guide to copy and layout
Comparison of all ads produced by agency
Determine value of position, size and color
Measure attention value of ads
Detect changes in reader acceptance
Determine technique to interest specific audience
Help sell client management on campaign

How Starch Advertising Readership Scores Are Determined

Daniel Starch and Staff personally interview a cross-section of readers of selected issues of Business Week. Every element (headline, illustration, copy) of each ad is tested. There are three resultant scores, representing the percentages of interviewed readers who (a) noted the ad when they read the issue; (b) associated it with the company or brand advertised; (c) read half or more of the words in the ad. In addition, certain ratios are drawn between readership and cost of space.

WHEN YOU WANT TO INFLUENCE MANAGEMENT MEN

Pittsburgh COLOR DYNAMICS®

Improves production efficiency in DoALL plant

Leading maker of versatile machine tools uses modern painting system to improve workers' vision, reduce eye fatigue and improve housekeeping.

DoALL

HOW management and workers alike benefit by the use of Pittsburgh's painting system of COLOR DYNAMICS is being demonstrated daily in DoALL's plant at Savage, Minnesota. Many of the well-known and popular band machine tools made by The DoALL Company are manufactured in this plant.

For many years these versatile machine tools have been painted by DoALL according to the principles of COLOR DYNAMICS to increase operators' efficiency. Such functional use of colors is helpful in separating working parts from stationary parts and the materials being worked on. Eye fatigue is reduced and productive efficiency is improved.

"We believe in practicing in our plant what we preach," says Ernest L. Drew, DoALL's vice-president in charge of production. "For many years we have told our customers how important the engineered use of color is on the machines we make.

"When we built our new plant a few years ago, we decided to paint the interior and shop equipment according to COLOR DYNAMICS. This decision has paid off in its good effect on productive efficiency, safety, morale and general over-all housekeeping.

"COLOR DYNAMICS has made our shop a pleasant place in which to work. Our operators would rather work on colorful machines than drab ones. They are proud of their cheerful surroundings. This feeling makes them keep their departments clean and their machines bright. Painting with COLOR DYNAMICS has paid big dividends to us and our workers."

Why not try COLOR DYNAMICS in your plant—on a machine or two, or in one department—and see the difference it makes?

How to Get an Engineered Color Study of Your Plant—FREE

• For a complete explanation of the way in which your plant can be made more efficient with Pittsburgh's system of COLOR DYNAMICS, send for our free, comprehensively illustrated booklet. It explains simply and clearly how you can put color to work on walls, ceilings, floors, machines and mobile equipment.

Better still, let us show you exactly how to apply COLOR DYNAMICS in your plant. Call your nearest Pittsburgh Plate Glass Company branch and ask to have a representative give you a detailed engineered color study of your plant, or any part of it, without cost or obligation. Or mail coupon at right.

Send For FREE Book!

Pittsburgh Plate Glass Co., Paint Div.
Department BW-76, Pittsburgh 22, Pa.

☐ Please send me a free copy of your booklet "*Color Dynamics*."

☐ Please have your representative call for a Color Dynamics Survey without obligation on our part.

Name_____

Street_____

City_____

County_____ State_____

PITTSBURGH PAINTS

PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS • FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

PERSONAL BUSINESS

Understanding the broad principles of the complex estate-tax-law (BW—Jan.14'56,p131), is only the first step in saving your heirs tax money. **The next step—estate planning—is just as important.**

The law allows and encourages individuals to program their finances so they get the biggest break on estate taxes. But it's a long process. Middle age is none too early to start building to get the best benefits.

Estate planning has three important goals: (1) Reducing or eliminating a potential tax; (2) providing a way to raise liquid funds to pay a potential tax; and (3) since the estate tax is imposed on the value of property in the estate, anticipating and solving evaluation problems that may arise.

Two general approaches may cut or eliminate an estate tax. One, of course, is to make lifetime gifts, which shrink your estate before your death. **The second is through statutory provisions,** which remove assets from your taxable estate in three general ways:

• Marital deduction. Leave your wife complete and unrestrained ownership of property that qualifies for this deduction.

• Insurance investments. Give up ownership rights in policies that are payable to beneficiaries other than your estate. "Ownership rights" are usually the power to name beneficiaries and to assign or borrow on the policy.

(Watch out for this problem: There is a chance that the policy proceeds may come back to your estate. Then they may be taxed. This reversion is a tricky field. Have an expert check into it before you act.)

• Bequests to charity. These don't figure in your estate, for tax purposes, as long as the organizations getting the bequests qualify for the deduction.

Nonliquid assets of high value can be a pressing problem when an estate has to pay taxes and has no liquid assets available. If property has to be sold at sacrifice prices, it might not leave even enough for the tax itself—to say nothing of your heirs. **But using one or more of these techniques will provide a way to decrease the taxable estate or to raise liquid funds:**

• Family foundations. Especially useful where you have large holdings in a close corporation. The stock can be transferred to the foundation, which eliminates it from the estate, yet keeps the corporation within the family without having to give up stock to pay the tax.

• Providing a market for assets. Arrange a future sale now of a business interest that must be liquidated at your death. This can be done by contracting buy-and-sell agreements with business associates, key employees, or the company itself.

• Insurance funding. You can direct a trust that is made the beneficiary of a life-insurance policy to purchase nonliquid assets of the estate. This gives liquid funds to pay the tax, yet the trust can hold the nonliquid assets until they can be sold at a fair price.

• Gifts of nonliquid assets to charity. Giving such things as expensive art collections or personal residences will remove them from your taxable estate.

• Private annuity. If you can't afford to turn over your business to your family while you're living, consider selling it to them in return for a private annuity. You remove the value of your business from your estate, but

continue to get income for life. (Caution: Watch out for income-tax disadvantages.)

Finally, remember that valuation problems can put an unpleasant bite on an estate. Often these problems involve stock holdings in a close corporation. Since there's no ready open market to value the stock, the Treasury might set its value at a higher price than could be expected from sale or liquidation.

To offset this result, see if you can set a value that will stand up on the estate-tax return. One way: Arrange a buy-and-sell agreement with a potential purchaser that fixes the stock value. Generally this effectively fixes the value—if it binds both the estate and the purchaser.

Obviously estate planning is complicated, and you will need expert help. The ideal team consists of your attorney, accountant, banker, and insurance adviser.

—•—

The common cold is still with us—in spite of the 1956 model of the cold pill. This contains a group of natural chemicals called citrus bioflavonoids. They are found principally in the peels of the citrus fruits.

This is not a cold cure, and doesn't claim to be. The most it might do is to relieve symptoms, such as a stuffed-up nose, in some cases. Some medical men doubt that it will even do this for a large percentage of cold sufferers.

But if you don't expect miracles, it might be worth a try. Like vitamins, bioflavonoids are said to be harmless. It is sold in drug stores without a prescription, under various trade names. Usually it is combined with other agents, especially Vitamin C and aspirin.

Some doctors recommend large doses of Vitamin C in the earliest stages of a cold. In some cases it seems to forestall a cold's more acute symptoms.

But here again, there is no guarantee that it will have any effect at all, any more than may any other cold preparation.

—•—

Overnight rail travel west of Chicago and the Mississippi will be cheaper than usual until May 1. Rates for sleeping-car accommodations on 15 major railroads in the area have been reduced on an experimental basis.

Sample reductions: 21% for single-occupancy of a roomette; 31% for double-occupancy; 10% for lower berths; 40% for uppers. Similar cuts apply to compartments and duplex roomettes. Note that railroad fares remain the same.

—•—

Emergency winter feeding stations for wildlife are expensive to maintain and not always effective. So sportsmen's clubs are being urged to develop carefully planned planting programs to provide natural food. They should start planning now if natural food is to be available by next winter.

—•—

Manners and modes: Snowshoeing is enjoying a revival, partly because it's the best way to get away from overcrowded ski slopes into the quiet winter woods. . . . Buyers of low-priced cars have high-priced tastes—88% of them bought the de luxe models last year. . . . Pacific travel beyond Hawaii appears to be the coming thing for American tourists. Last year there was a 32% travel gain over 1954 in the area.

Contents copyrighted under the general copyright on the Feb. 11, 1956, issue—Business Week, 330 W. 42nd St., New York, N. Y.

"coated...to quiet the clatter"

That's why Geneva Modern Kitchens, Geneva, Illinois, coat kitchen cabinet shelves with plastisols based on BAKELITE Brand Vinyl Dispersion Resins.

"The 'whisper quiet' shelves have a smooth, shiny surface that will not attract dirt, is easy to clean, and has a rich warm feel," says R. W. Sponholtz, Vice President. "The coating provides a cushion for delicate china and glassware, yet is highly resistant to abrasion, corrosion by moisture, food and beverages. These features add much to the quality of our line."

Does your product require a coating that resists abrasion yet is soft and resilient? Or must it resist sun, chemicals, corrosion, flexing? The answer may be plastisols based on BAKELITE Brand Vinyl Dispersion Resins. For more specific information and a list of suppliers, write today to Dept. NC-14.

This shelf was dip-coated, followed by a short bake at moderate temperatures. Slush molding or injection molding with little or no pressure are other methods of using plastisols. Almost any color can be obtained and finishes can be glossy or matte. Coating for this Geneva Modern Kitchen shelf formulated by **Michigan Chrome and Chemical Co.**, Detroit, Mich.

BAKELITE
BRAND
RESINS

BAKELITE COMPANY
A Division of
Union Carbide and Carbon Corporation UCC
30 East 42nd Street, New York 17, N. Y.

The term BAKELITE and the Trefoil Symbol are registered trade-marks of UCC

OIL

Loans in Canada

Look to Canada's First Bank for the soundest financing of oil developments north of the border. Call on the bank with 231 branches in the oil provinces alone . . . call in the B of M. Address our most convenient office in Canada, the U.S. or Head Office, Montreal.

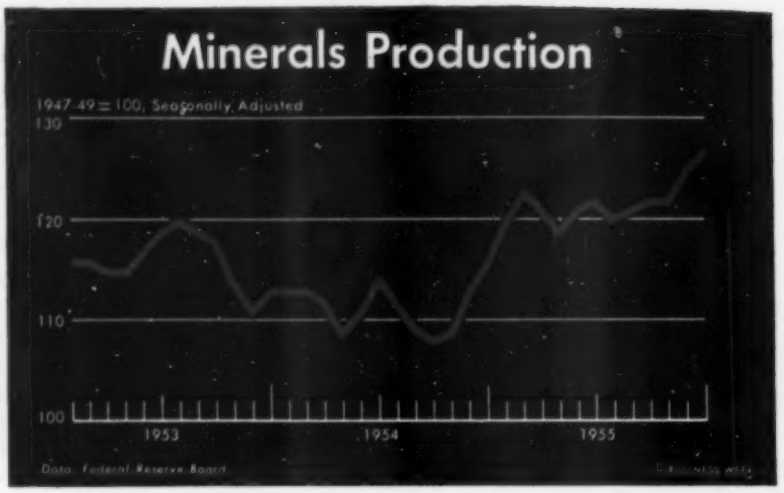
"MY BANK"
B of M

New York: 64 Wall St.
San Francisco: 333 California St.
Chicago: Special Representative's Office, 141 West Jackson Blvd.

BANK OF MONTREAL
Canada's First Bank
650 Branches Across Canada
RESOURCES EXCEED $2,700,000,000

Big operating advantages—at small unit cost—explains why Mercury Automatic Clutches are now standard on thousands of electrically-powered products for farm, home and factory. Mercury Clutches permit no-load starting, transmit power at full efficiency, protect the power unit against overload and reduce fire hazards. Looking for ways to improve *your* product? Write today for full information on Mercury's line of automatic and manual clutches—for gasoline, or electrically-operated equipment.

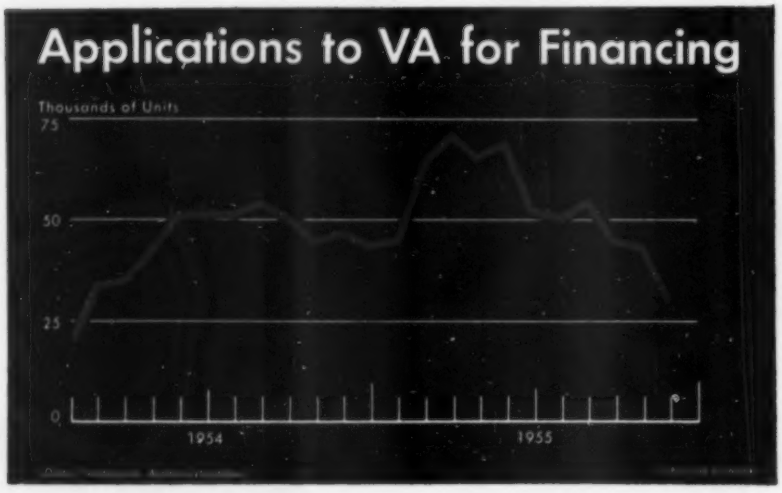
MERCURY CLUTCH DIVISION
Automatic Steel Products, Inc.
World's largest manufacturer of automotive spun steel pulleys
1229 Camden Avenue, S.W., Canton 6, Ohio



It's Smashing All the Records

Production of minerals climbed to a new monthly peak in December, 1955 – and at the same time clinched the record for the year as a whole. As measured by the minerals component of the Federal Reserve Board's industrial production index, December output was 9.5% above December, 1954. For the full year, 1955 was 9.9% over 1954.

Mineral output for 1955 also set a new high in terms of value. Last month the Bureau of Mines reported the value of 1955 mineral output at $15.8-billion – up 11% from 1954's $14.1-billion production. The 1955 figure was well ahead of the previous high of $14.4-billion, recorded in 1953. Expansion in production of liquid and gaseous fuels, bituminous coal, copper, and iron ore contributed to the gain, in that order, the Bureau reported. Higher prices also were a factor, however.

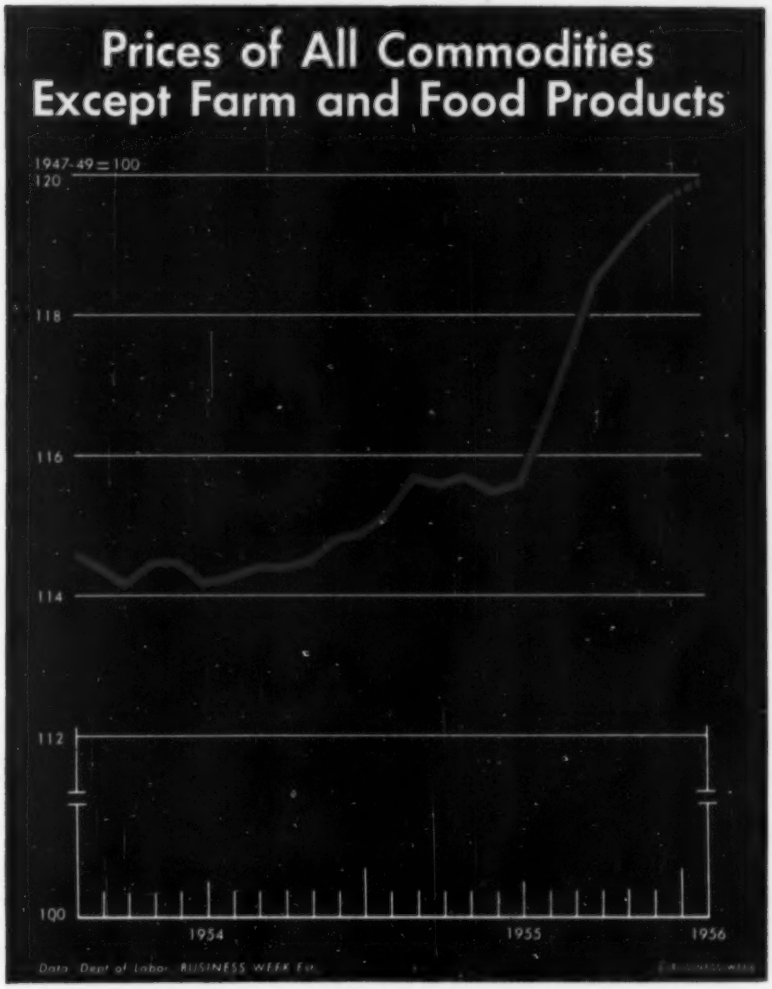


Housing Push Gets Weaker

The drop shown above in the number of requests for Veterans Administration appraisals for financing proposed home construction points to a decline this year in the number of government-assisted housing starts. Applications for

Federal Housing Administration insurance on new home construction have dropped off, too.

Since these starts have been an increasingly important part of the total, the double drop provides another signpost indicating an over-all decline in housing starts in 1956. VA-underwritten starts amounted to almost 30% of total privately financed starts in 1955 – rising from somewhat over 25% in 1954, and an average of a little over 14% in prior years. Since all new home-mortgage loans have tended to follow the same trend, the drop may signal an over-all decline in demand for mortgage credit.



Capacity Work Is the Booster

Wholesale prices of all commodities except farm and food products went up with a rush through the last six months of last year. They climbed 3.5% between June and December. And through January, they kept edging up. The boosting force was the high demand of industries operating near capacity (BW – Nov.19'55,p25). The fresh power of this demand is seen in the fact that wholesale prices of commodities other than farm and food products rose only 0.6% in the first half of 1955, and only 0.3% during 1954.

The sharpest rises over the past year have been in prices of rubber and rubber products, metals, paper products, machinery, and leather.

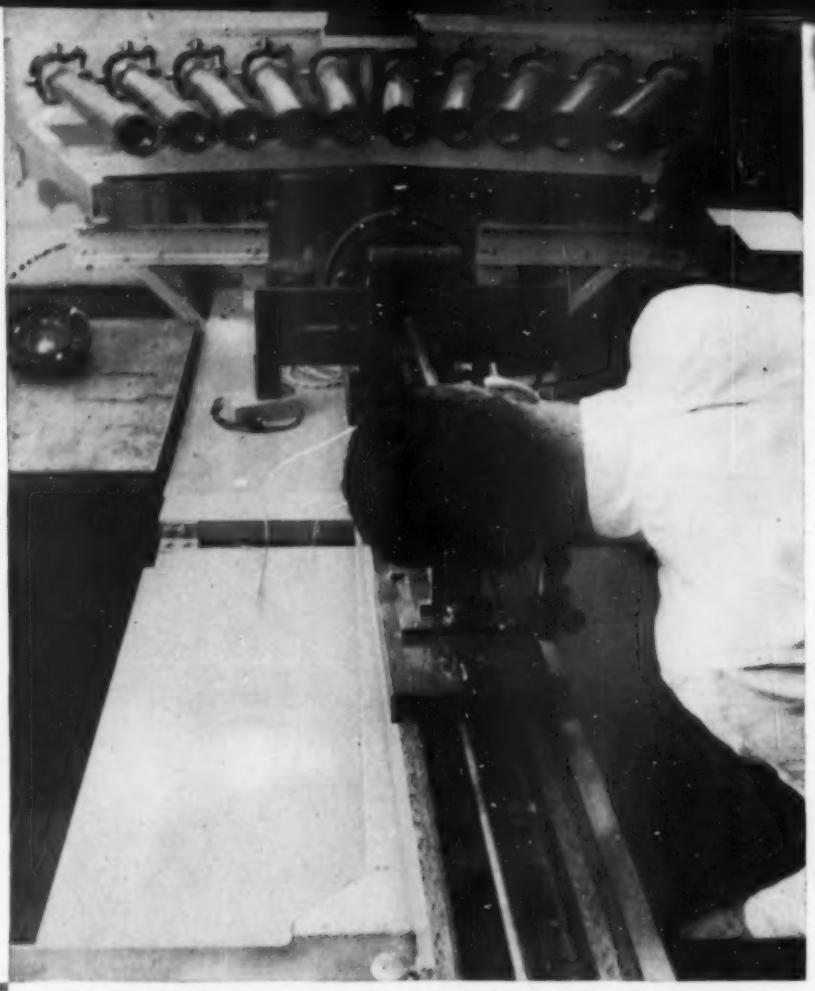
The wholesale price index for all commodities – including farm and food products – gives a very different picture. It has hardly moved. The reason, of course, is that increases in industrial commodities have been offset by falls in farm and food product prices. Farm prices declined 7.2% from December, 1954, to December, 1955; processed food prices fell 5.1% in the same period.

making a
MARKED IMPROVEMENT
in PAINT CAN MARKING

The problem of paper labels on cans becoming dirty and torn (and presenting a poor sales appearance on the retailer's shelf) plagued a typical paint manufacturer, until he began using the Markem Method. Now he's imprinting variable data (color, batch number, etc.) on 1500 lithographed cans per hour with a Markem 70AF machine. Changing imprint simply means sliding new type into the master-plate (instead of ordering 2000 new labels). Whether it's a container, product, part or tag you're marking—for decoration, designation or identification—ask Markem. Thousands have, for the past 40 years. Write Markem Machine Co., Keene 33, New Hampshire.

Markem
...to Make Your Mark

The National Bureau of Standards, headed by A. V. Astin (below), probably is the least understood operation in Washington. But no other agency so directly effects the everyday life of so many Americans. These pictures take you on a behind-the-scenes tour of some of the bureau's current projects.



LENS TESTER that calibrates the focal length and distortion of all standard lenses illustrates NBS's function as the nation's standard setter.

Bureau of Standards:

One of the chronic complaints at the U.S. National Bureau of Standards is that Congress—particularly at budget planning time—just doesn't understand what the bureau is trying to do.

To the public, the bureau seems even more of an ivory tower group, whose chief mission is to guard the prototype standard weights and measures and to set performance standards for such things as clinical thermometers. Occasionally the bureau makes the headlines, as during the uproar over a battery additive ADX-2, but by and large the layman pays little heed unless the bureau comes up with a startling new development.

• **Big Role**—Actually, no government agency—including the Internal Revenue Service—so directly affects the everyday life of so many Americans. Although it issues no regulations or orders, the National Bureau of Standards is the nation's principal laboratory for research and development in the physical sciences and engineering. And as such, it is the cornerstone of U.S. commerce and industry.

NBS does not test products. Its only product evaluation work is done strictly for the U.S. government. But it does test instruments by which measuring devices are calibrated.

The automobile maker, for example, depends upon the bureau's standard gauge blocks to turn out its pistons and cylinders by mass production methods. Manufacturers of refrigerators, television sets, and electronic equipment count on NBS for proper functioning (and hence consumer acceptance) of their products.

Hospitals lean on the bureau's standards of radioactivity to treat cancer patients. Traders in grain, steel, coal, and other commodities depend upon the reliability of replicas of the bureau's standard weight scales to measure their merchandise.

• **Demands**—NBS, a division of the Commerce Dept., was established by Congress in 1901 to work out standards

LENGTH can now be determined by a new method that uses a wavelength of green radiation of mercury-198.

X-RAY MACHINE, developed for another government agency, can take a panoramic picture of the whole mouth.

BASIC RESEARCH takes the full time of a third of the bureau's personnel.

The Agency Nobody Understands

of electricity, temperature, and subdivisions of mass and length. But since then, it has diversified along with the rapidly expanding demand for improved measurement methods by U.S. industrialists. Its forays into all phases of development work in physics, mathematics, chemistry, and engineering were efforts to improve standards and measurement methods. But the result has been to push the bureau into the forefront of scientific progress.

The bureau (population 2,800—40% of whom are professional scientists) may get a call to provide a computer to determine radioactive fallout. The next minute it may be asked to come up with a device to measure the thrust of jet engines.

It is constantly being besieged for data regarding the properties of metallic systems in combination. And it's even now embarking on a program to redetermine the pull of gravity—a constant of vital importance to the aircraft industry. Since there's no way of telling just what industry will need next, Director A. V. Astin (picture) says, it's seldom that any bureau project ever ends (except in cases where, for special reasons, some other government agency can handle the problem better).

Currently, the bureau is refining several hundred basic standards of measurement, and is working on scores of others to measure scientific phenomena that have not even been explored.

• **Basic Research**—All this calls for heavy fundamental research—work that Astin claims takes up a good third of the bureau's time and personnel. Since much of this research is of an obscure and often incomprehensible nature to the layman, there's a lot of misunderstanding over what NBS really does. According to legend, Congressional confusion started as far back as 1901, when a southern Congressman asked for an explanation of alternating current. Ever since, the story goes, Congressional committees have been snooping into NBS closets.

Far more obvious, and easier to explain to bureaucrats, is the part the National Bureau of Standards has played in research and development work on defense-related items.

During and following World War II, major NBS contributions along this line included atomic and physics projects for the Atomic Energy Commission; guided missiles work, undertaken for the Navy Dept. in cooperation with Bell Telephone Labs and Massachusetts Institute of Technology; and extensive work on radio proximity fuses for the Army.

• **Byproducts**—Although the weapons portion of this work has now been turned over to the Defense Dept., a flood of byproduct developments still flows out of the bureau's labs. To name just a few:

• Continuation of the bureau's proximity fuse research has led to real progress in the refinement of electronic tubes and printed electronic circuits.

• Work for the Air Force has led

PRODUC-TROL
Visual Control
not only schedules,
But automatically checks with TIME, LINE and COLOR control

- Original cost and upkeep low.
- Schedules and time checks operations.
- Historical record to back it up.
- Bad situations show automatically.
- Its simplicity has put it into world-wide use.
- Analyze 100 items in 10 seconds.

Effective Tools for Effective Management

WASSELL ORGANIZATION, INC.
Westport, Conn.

---

this precision recorder fits in your pocket!

minifon **P 55**

out of sight, out of mind—you get all the facts

The perfect "second memory" to save you time and work—the world's *only* pocket-sized, push-button precision recorder! Take it with you wherever you go. Records everything—up to 4 hours on a single reel! Plays back, erases, rewinds—great for dictation, too, and only 28 ounces!

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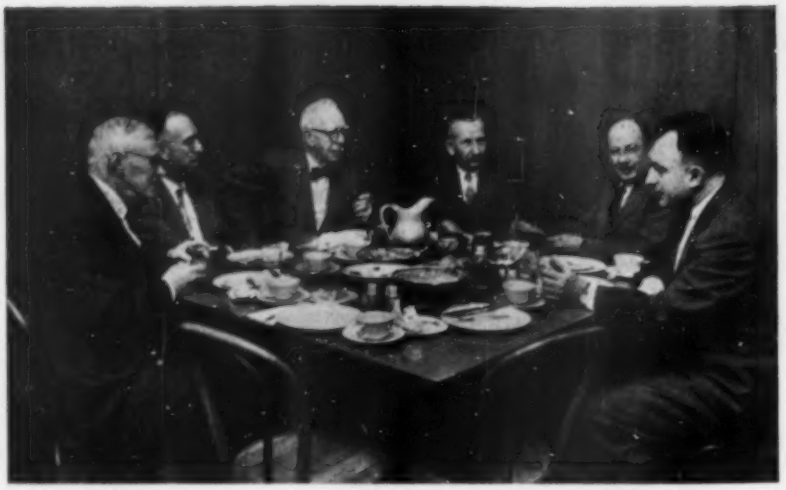

SWAPPING OPINIONS between scientists trained in different fields of research is one of the most rewarding features of NBS research.

HOME BASE for National Bureau of Standards is this sprawling 68-acre "campus" on the outskirts of Washington.

Story starts on page 164

to the development of a panoramic X-ray machine capable of taking whole mouth X-rays.

• Research on the action of the human heart—for AEC—resulted in the invention of the ballistocardiographic jerkmeter, which measures motion delivered to the body by the heart.

• War work for the Army in the field of radio propagation has developed into a Central Radio Propagation Laboratory in Boulder, Colo. It was from this lab that the first signals from earth to moon and moon to earth were received.

• **Consultant**—NBS, however, is not a consulting laboratory for the sole benefit of U.S. government agencies. Technical advisory committees from most of the nation's major scientific organizations have been invited to consult with NBS officials on a regular basis—both to strengthen the bureau's knowledge of the needs and wishes of private industry, and to provide themselves with an opportunity to seek the bureau's aid on projects of general interest to the advancement of technology.

• **Offspring**—Typical of the offspring from this kind of relationship is the high-speed electronic computer.

Out of the close association of NBS and the American Institute of Electrical Engineers came the first postwar super-speed digital computer to go into productive operation. (This was the much heralded SEAC.)

Today, NBS uses the SEAC on a round-the-clock schedule. Its most recent application was to perform the statistical calculations needed to interpret measurements in a project to

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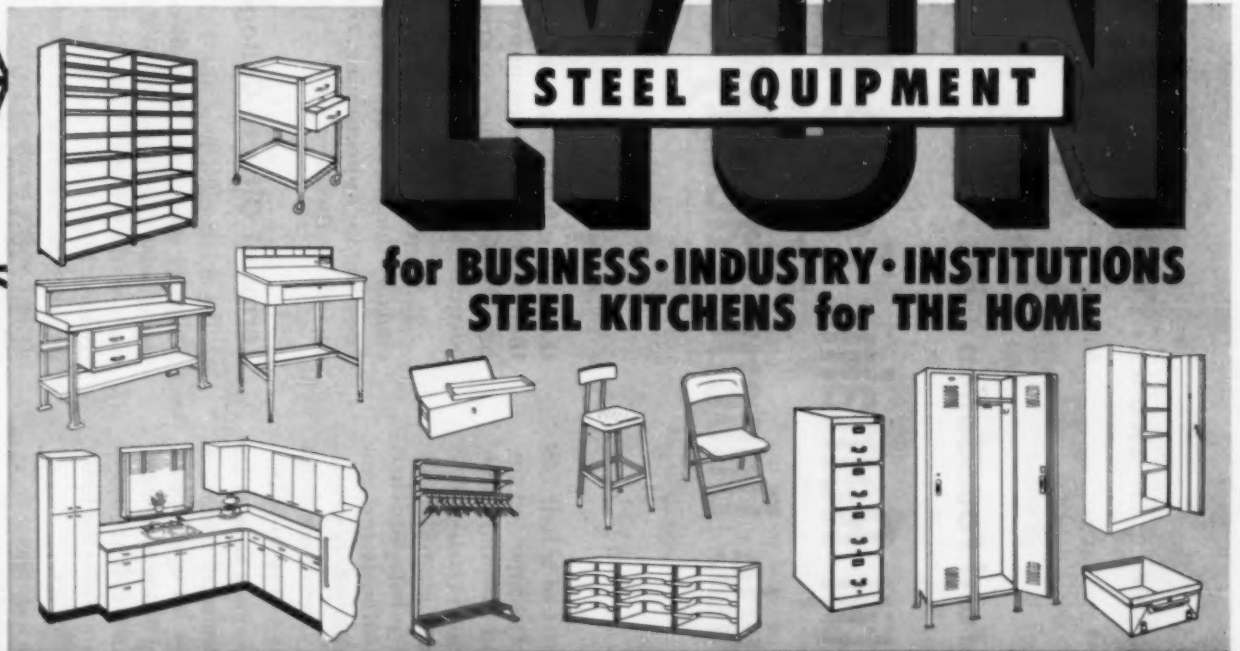

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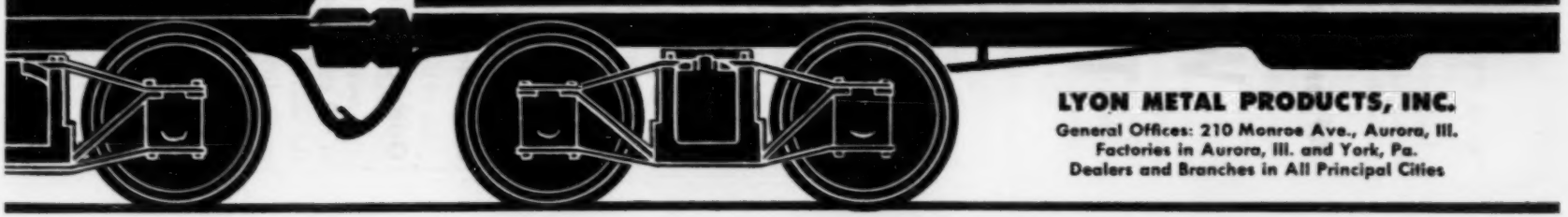

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After the Great Ford Foundation Gift . . .

What Still Remains To Be Done To Provide Decent Faculty Pay

The Ford Foundation's gift of a half billion dollars to our privately supported colleges, medical schools and hospitals, now being distributed, is magnificent. But it will be much more magnificent if it inspires completion of the job to which it gives a lift. So far as the colleges and universities are concerned, this job is primarily to rescue their faculty members from being second-class citizens economically.

Even in a period when we have become accustomed to astronomical financial figures, a half billion dollars remains an eye-popping gift. In fact, it is so imposing that a good many people who don't read the fine print are apt to conclude that it must just about solve the financial problem to which it is addressed.

Goes Only a Small Way

However, we have allowed college professors to fall so far behind the parade financially that the share of the Ford half billion dollar gift going directly to the improvement of faculty salaries ($210 million) will go only a small way financially toward doing what is necessary to provide adequate salaries.

Completion of this job for our privately supported colleges and universities calls for:

1. An increase in faculty salaries at least five times as great as that made possible by the Ford gift merely to restore salaries to their 1939 purchasing power level and an increase fifteen times as great to provide adequate salaries today.

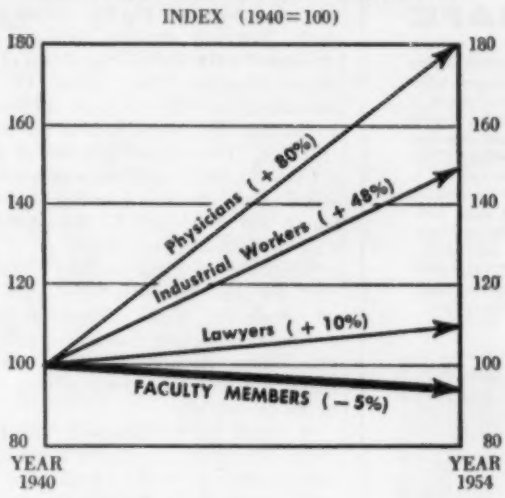
2. Some difficult and courageous decisions by the heads of the colleges and universities in apportioning the grants received by them.

Terms of Gifts to Colleges

The $210 million of the Ford Foundation gift going specifically to improve faculty salaries is being distributed on the following basis: Each of 615 privately supported, regionally accredited liberal arts and science colleges and universities receives a gift about equivalent to its last year's teaching payroll. For ten years only the income from these gifts is to be devoted to raising faculty salaries. After that all the money can be spent in any way the institutions receiving it see fit. There is no requirement that universities having other than liberal arts and science schools limit use of the gifts to improving salaries in these schools alone. They can spread it right through all their faculties if they wish.

In addition to the gift of $210 million specifically directed to increasing faculty salaries, another gift of $50 million goes to a group of 126 institutions selected for specially noteworthy leadership in improving

What's Happened to College Faculty Salaries*



* Real Income before Taxes.

Source: Council for Financial Aid to Education; U. S. Dep't of Commerce; U. S. Dep't of Labor.

the status and pay of teachers. For these schools the individual gifts add about 50% more to the amounts coming from the $210 million fund. They can be used to improve faculty salaries if the institutions choose to do so, but this is not required by the terms of these gifts.

The $210 million plus the $50 million should yield an income of $10-$13 million a year. Even if all this is used to raise salaries, it will be only a small step, however worthy, toward the $200 million per year the colleges need to meet their salary requirements adequately.

Helps Some Who Need It Most

In focussing its gift to improve faculty salaries in privately supported liberal arts and science colleges, the Ford Foundation aims at least part of the help at the spot where it is most desperately needed. Numerous surveys have indicated that the most poorly paid of all college and university faculty members are those in small, privately endowed liberal arts colleges.

But the overshadowing fact is that the teachers in our colleges and universities as a whole are badly underpaid. Just how badly is indicated by the chart above which first appeared in an earlier editorial. (Figures later than those for 1954 are not available.)

The Ford gift will turn the indicator of faculty salaries, which now lies far below the general salary trend, upward a few points. And it will do this in some places where salaries are below the wretched average shown by the chart.

But the Crucial Test Remains

College and university administrators will have the opportunity to extend further the process of getting the help provided by the Ford Foundation gifts where it is most needed. In general, this will mean giving it to senior faculty members, in order to hold experienced teachers and make college teaching attractive as a career. But to make such a division in many schools will take extraordinary fortitude.

The crucial test of the success of the enterprise of the Ford Foundation in raising faculty salaries will lie in whether it prompts the rest of us — college alumni, individuals, business firms and legislators alike — to see that it is a great beginning, not a signal for a recess.

Even with the Ford gifts providing $10-13 million a year, our privately supported colleges and universities must have an increase of about $190 million a year to provide decent faculty salaries.

This is a job far beyond the capacity of the Ford Foundation, imposing though that is. It is a job far beyond the capacities of a few hundred large corporations and a few thousand wealthy individuals. If it is to be done, it is a job at which all of us must work with a will.

This message is one of a series prepared by the McGraw-Hill Department of Economics to help increase public knowledge and understanding of important nationwide developments that are of particular concern to the business and professional community served by our industrial and technical publications.

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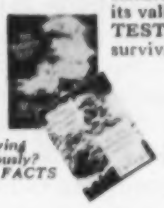

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redetermine the velocity of light.

The design and development of the NBS "flowmeter" is another example of team work between the bureau and industry. The flowmeter was invented—with the aid of oilmen—to measure the flow of liquids and gases in closed conduits. But just recently, NBS, in cooperation with the Georgetown University Hospital (Washington, D. C.) has redesigned the electronic flowmeter to measure the blood flow in the aorta of a dog. The normal channel of flow is from the dog's heart into an artificial blood pump—the first working model of which was developed by National Bureau of Standards engineers.

Scientists see many other possible uses for the flowmeter too—such as measuring the ocean currents at great depths, determining the rate of exhaust gases being funneled through smokestacks and measuring fuels as they cool in an atomic pile.

A recent NBS advance in the field of low temperature physics could have even greater scientific significance for space travelers of the future. In the past, scientists had assumed that superconductivity (that property of certain metals—such as lead—that causes them to lose their electrical resistance when cooled to absolute zero) depended entirely upon the metal's unusual electronic configuration. NBS experiments have proved, however, that such is not the case. Rather, a metal's superconductivity has been determined to be a function of its nuclear mass.

In another project, flame spectroscopy experiments are pointing the way toward a basic theory of combustion—with its obvious immediate applications to the jet aircraft industry.

And the development of the Meggers-Mercury-198 lamp has given scientists a precise and convenient device for measuring length accurately to .000000001 of an inch that should open up spectacular developments in the field of physical optics.

• **In Chemicals**—The bureau also is active in basic and applied chemical research. It is the acknowledged pioneer in the development of ceramic coatings for the protection of metals at high temperatures. Originally developed during World War II to counter the damage of exhaust systems on plane engines, NBS coatings today are widely used for commercial and military aircraft, and have recently been adopted by both the automobile and electric range industries.

In collaboration with the paper industry, NBS has perfected a method of making paper entirely of glass fiber—containing no adhesives nor binders.

With the metal producing industry, the bureau has worked out the electrolytic production of molybdenum—that critical refractory metal needed in the

". . . it's this very diversity that makes the bureau hard to evaluate in dollars and cents . . ."

STORY starts on p. 164

production of alloys that are to be exposed to high temperatures.

A typical engineering development, handled by National Bureau of Standards personnel, is the work recently completed on lightweight cements.

Cellular concretes—so light that they float—have been used in appreciable quantities abroad. But until very recently, they have received little attention as a building material in the United States. A pioneering NBS survey reveals, however, that "foam" concretes offer important advantages—especially when used in combination with conventional building materials. For example, they are lighter, have lower thermal conductivity, lower dry shrinkage, and have less water capillary action.

And, the Bureau of Standards has proved, they can be made relatively cheaply—with fly ash or other waste dusts of industrial processes.

• **Paradox**—This diversity in research is, of course, what gives the National Bureau of Standards its position as chief physical research laboratory of the U.S. But at the same time, it's this very diversity that makes the bureau hard to evaluate in dollars and cents. A few Congressmen each year prowl among the welter of prisms and test tubes in the 68-acre lab—honestly trying to ferret out something material with which they can argue for more funds. But more often than not, they're unsuccessful—and for a reason that's impossible to overcome.

The bureau's stock in trade is basically the development of new ideas and new methods of evaluating natural phenomena in terms of specific measurable quantities. The substance of this work is research leading to quantitative knowledge in a wide range of fields—from the magnetic moment of the proton to the structural properties of steel girders, and from the characteristics of nuclear radiation to the nature of interstellar radio noise.

Much of the bureau's work seems to go for nought or can't be described in terms the layman can understand.

But with it, the Bureau has managed to keep abreast of the nation's technological requirements. And as such, if bureau personnel have their way, it will continue to operate in the future.

Director Astin feels this is the only way that the Bureau of Standards can meet its unique responsibility to the people of the United States. **END**

We're starting construction of America's most modern cement manufacturing plant in the heart of a great midwestern market at Milwaukee. It will introduce a new conception of efficiency and cleanliness in cement making, provide 1,250,000 barrels of additional annual capacity where demand is great and growing.

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In Research

• • •

Big Increase in Research Outlays Is Predicted for the Next 10 Years

In the next 10 years, annual expenditures by U. S. industry and the government for scientific research and development can be expected to increase by at least 50%, according to Dr. Haldon A. Leedy, director of the Armour Research Foundation at the Illinois Institute of Technology.

Research expenditures are currently estimated at about $4-billion. That's only 1.1% of gross national product, but the percentage has been increasing steadily. Back in 1920, research spending amounted to only 0.1% of GNP.

Assuming a continuance of the rate of increase and a GNP of $540-billion by 1965, Leedy predicts that annual expenditure for research will reach about $6-billion within 10 years.

• • •

New Intravenous Injections on Trial As Control for Hardening of Arteries

A new vitamin-hormone compound to control hardening of the arteries is being offered to physicans by the Vascular Research Foundation of New York on an "investigational basis." The compound, called Co-thyro-bal-d, is administered intravenously. It reduces and stabilizes cholesterol in the blood.

The treatment relies on the theory, first proposed by Dr. Wilhelm C. Hueper of the U. S. Dept. of Public Health, that all forms of arteriosclerosis have a common basis in the diminished ability of the body cells to utilize oxygen properly. This condition, so the reasoning goes, is overcome when an imbalance between the thyroid and the body's vitamin intake is righted.

• • •

Engineering Approach is Applied To Problems in Orthopedic Surgery

MIT has announced plans to study the structural and mechanical functions of the bones, joints, and muscles, and related engineering problems in orthopedics.

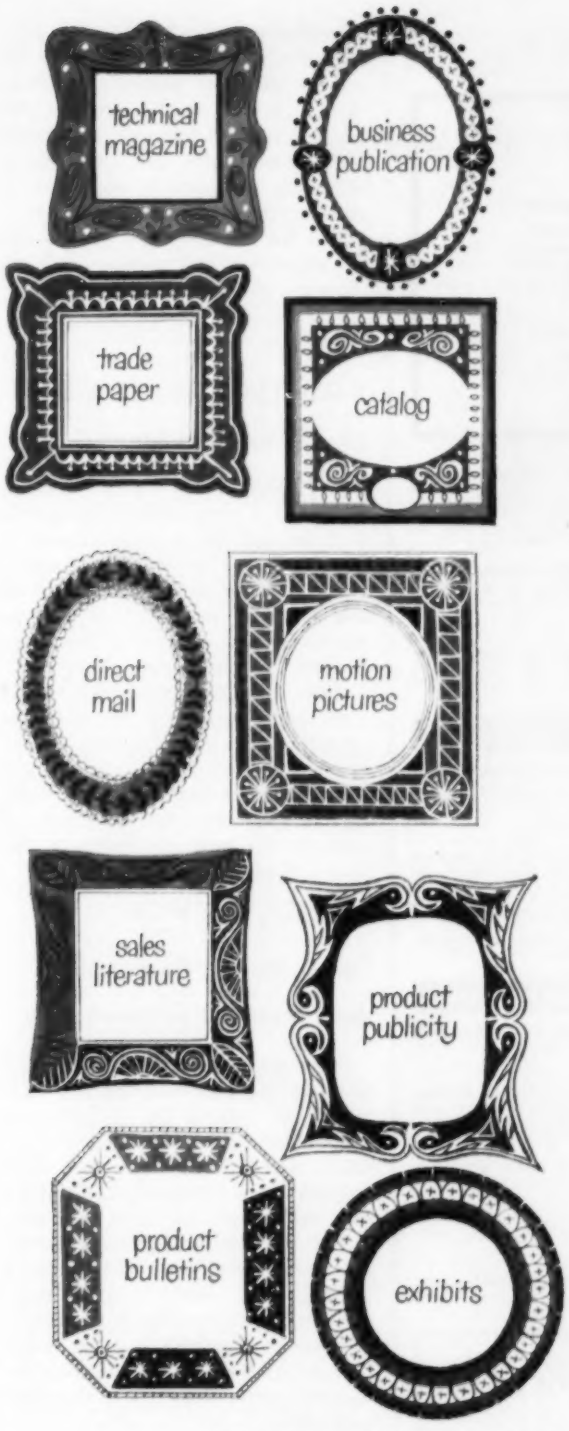
Commenting on the program, medical men are optimistic that an intensified study of the engineering approach to orthopedic surgery will eventually produce substantial benefits.

• • •

Device to Count Moisture Particles Offers Help in Study of Clouds

Development of a new high-speed electronic device called the Cloud Particle Counter is expected to help scientists gain a better understanding of how clouds behave.

The device was developed by the Armour Research Foundation of the Illinois Institute of Technology for the Geophysics Research



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X-Ray Plate Can Be Erased Like School Blackboard

A revolutionary X-ray process, hailed as a potentially vital aid to civil defense, has been pioneered by the Battelle Memorial Institute. Because the image can be wiped off and the plate used again, as a school blackboard is re-used, it has been dubbed "the blackboard X-ray."

After the selenium-coated aluminum plate has been exposed, the operator dusts it with a fine powder that clings only to the still-charged areas. This produces a subtly shaded picture that can later be wiped off without the use of water or any chemical agent.

• • •

Texas Studies Reservoirs And Their Evaporation Loss

This week, the Texas State Board of Water Engineers launched a study aimed at cutting the huge water evaporation losses from state reservoirs. **In Dallas alone, loss from evaporation is estimated at 12-billion to 15-billion gal. of water each year.**

The Southwest Research Institute has been hired for the research project. The institute will make extensive tests on a series of organic compounds, including fatty acids, that are known to form a protective film on a water surface, thus retarding evaporation.

The effect of such a film on fish, plants, algae, animals, and the oxygen content of the water must be determined, as well as the effect on boats, piers, trees, birds, and swimmers. But similar experiments in Australia and Ceylon have indicated that such a method of controlling evaporation over small areas of water is well within the realm of possibility.

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For Peace in the Middle East

Last week, Pres. Eisenhower and Prime Minister Sir Anthony Eden took a hard look at the explosive situation in the Middle East. They reached the conclusion, rightly we believe, that the "most urgent need" today is an Arab-Israel settlement. And they called on both sides to "reconcile the positions which they have hitherto taken."

As we see it, this badly needed process of pacification will get nowhere unless there is an end to the Arab-Israel arms race. American politicians, be they Democrats or Republicans, who urge more arms for Israel are not contributing to a relaxation of tension in the Middle East—or to the security of Israel.

It is said that the Soviet arms deal with Egypt has put a new complexion on this conflict, that we must help redress the balance in Israel's favor. This strikes us as the most dangerous kind of reasoning. Whatever Moscow's game is, and it is safe to assume the worst, there is this much to be said for Premier Nasser of Egypt: He made this deal only after (1) an unexpected Israeli attack late in February, 1955; and (2) an unsuccessful effort to get arms from the U.S.

But the real point is this: Israel cannot hope to find security by trying to maintain its present military superiority over its Arab neighbors. With some 1.7-million Israelis pitted against more than 40-million Arabs, there can be no doubt about which side has the greater long-run capacity to absorb arms. There can be no doubt, either, that more U.S. arms for Israel today mean more Soviet arms for Egypt tomorrow—probably on a two or three to one basis. In this kind of race neither Israel nor the U.S. can win.

What we must do in this situation is to find a formula on which enduring peace can be built. There are two key problems—establishing recognized borders for Israel and taking care of the 800,000 displaced Arabs who now are in refugee camps. Our proposals to meet these problems must bear the stamp of equity before world opinion. Then we must try to persuade both the Arab nations and Israel to accept them as a basis for negotiation. Meanwhile we will have to be prepared, as Eisenhower and Eden warned, to intervene with force if either side uses force to violate the present frontier and armistice lines.

There is no way the U.S. can escape its responsibility in this situation. Without our support the state of Israel would not have been born. Without money from here it could not have lived. That means we are morally committed to see that the state of Israel survives.

But we cannot forget the Arab side of the equation. In Arab eyes the creation of Israel was nothing less than an imperialist invasion, which they were forced to accept because of Western strength.

For years now the American people have been playing the ostrich in this situation, refusing to face the fact that some day we would have to pay a price for having changed the balance of power in a strategic area.

Peace in the Middle East, and Israel's security, depend on our ability to face this fact.

Action on Highways

The long dispute over the federal highway program finally seems to be headed toward a conclusion.

Last year, the Democratic Congress blocked the Administration's proposal, which called for financing largely through the use of credit. We thought then, and we still think, that the plan was thoroughly sound (BW—Aug.6'55,p160).

The compromise proposal that is now going to Congress with some measure of bipartisan support calls for financing primarily through taxes on highway users. If it is adopted, this will represent a victory of sorts for the congressmen who defeated the Administration program last year. But as House Republican leader Joseph W. Martin has pointed out, the President wisely decided that the choice was either to concede on this point or "give up the roads."

The roads cannot be given up. The need is too urgent, and the method of financing is, after all, secondary. We hope that the compromise will stick and that Congress will get down to business with no more delay.

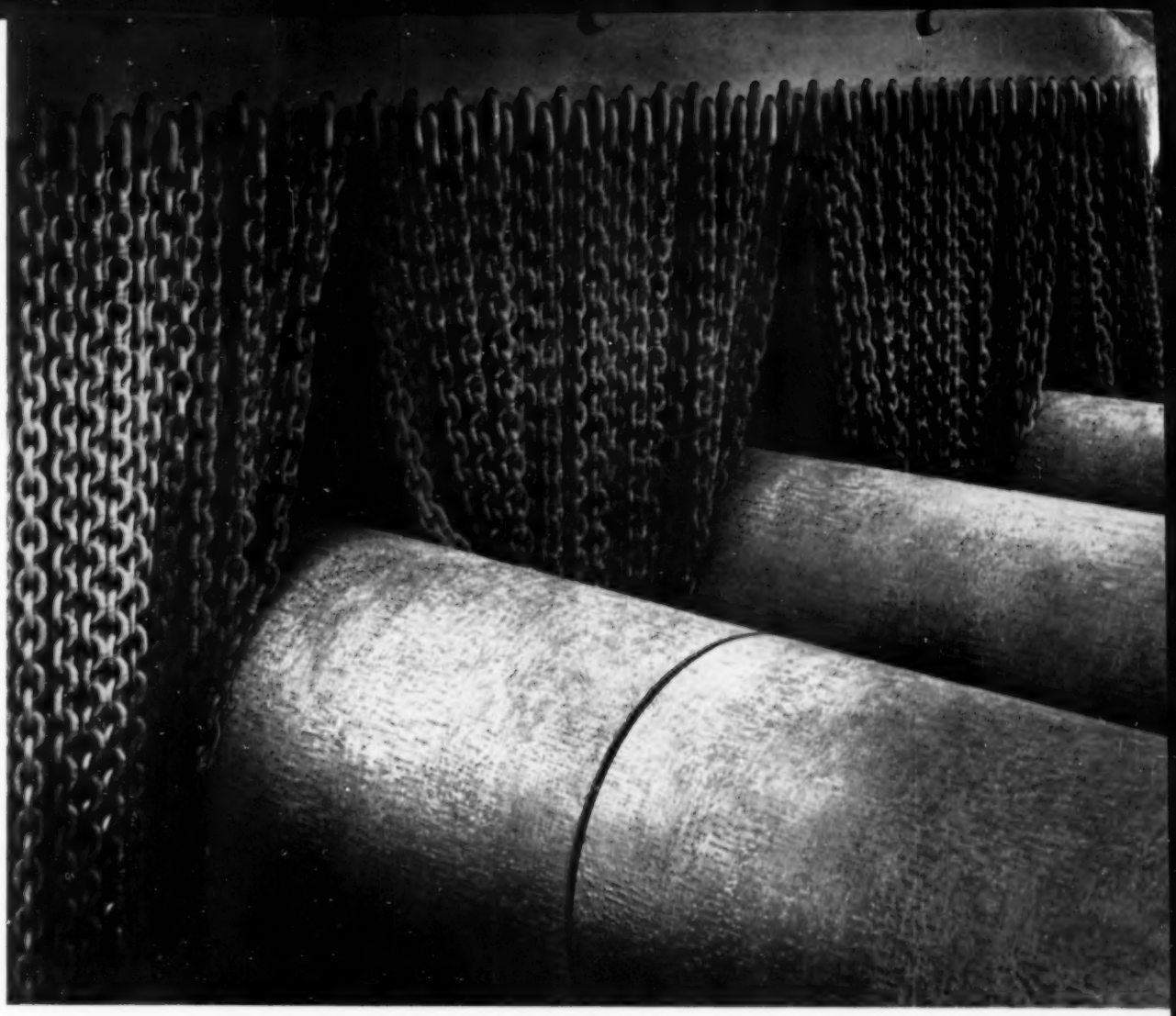
An Incompleat Letter Writer

The hot water in which the Secretary of Agriculture recently found himself prompts us to offer, as a public service, a few samples of the art of letter writing. The following models are designed to handle, with a maximum of courtesy and a minimum of peril, the situation that arises when someone sends you a bulky document and asks your opinion of it:

Dear Sir: Thank you very much for your thoughtfulness in sending me your manuscript entitled "The Man-Eating Shark Must Go." I look forward to studying it at the earliest opportunity.

Dear Sir: Mr. Busy is out of town at present, but I know he will be interested in your article and will appreciate your sending it to him. I will call it to his attention as soon as he returns. Sincerely yours, Hildegarde Bifocal, Secretary to Mr. Busy.

Semanticists call this sort of thing "phatic communication" and point out that it plays an important part in all civilized exchange. Its role in business and government is obvious. No man above the junior executive level can hope to read all the mail that floods in upon him. But any man, especially a man in public life, has to remember that it doesn't do you any good for thine adversary to have written a book if he has succeeded in getting your endorsement on the dust jacket.



Iron Curtain...American Style

Compare the iron curtain of totalitarianism with America's free enterprise system—symbolized by these aluminum ingots moving into a Harvey furnace. In America, wealth is multiplied, not divided. And competitive enterprises...founded by *individuals* who have labored, saved and invested...prosper and grow while constantly making tomorrow better than today. Such *confidence in tomorrow* . . . vital to our heritage . . . has made America not only rich in money, but also rich in the things money cannot buy. Harvey Aluminum is itself both product and advocate of this competitive enterprise system . . . the most American of all our institutions. Our more than 40 years of experience can be a valuable help in solving any problem involving the use of aluminum. To find out how, contact a Harvey Engineer today.

Harvey is a leading independent producer of quality aluminum products. Extrusions in all alloys and in all sizes, special shapes, press forgings, hollow sections, structurals, rod and bar, forging stock, pipe, tube, impact extrusions, aluminum screw machine products and related products. Harvey is also producing similar items in titanium and steel.

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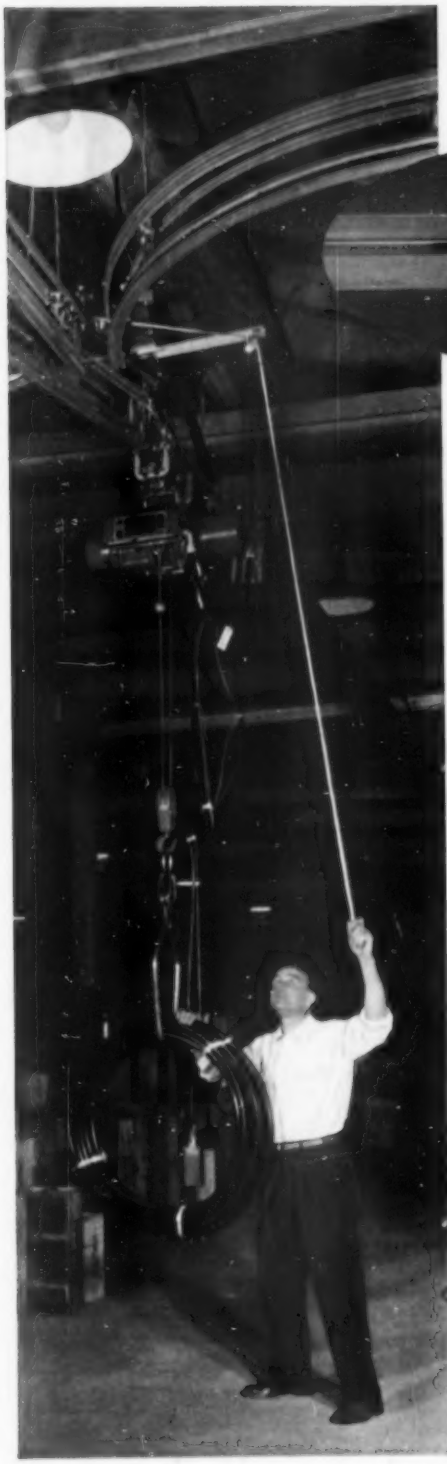
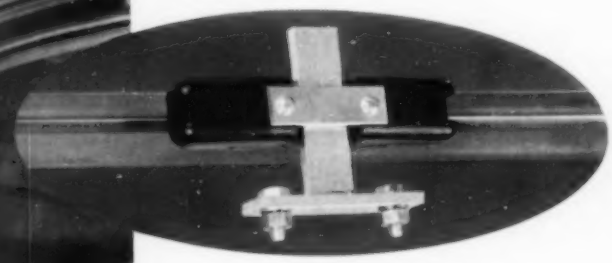
Another new development using

B. F. Goodrich Chemical *raw materials*



B. F. Goodrich Chemical Company does not manufacture this extrusion. We supply only the Geon rigid vinyl materials.



Rigid Geon packs power in small space

NAKED wires on an overhead power lift are a hazard, lose power along the line and have to be spaced widely where multiple electrical contacts are needed in large plants. As a product improvement, a manufacturer has designed U-shaped extruded insulation made of Geon rigid vinyl that has many advantages for the job.

The rigid vinyl extrusion carries a metal contact conductor safely so that as many as three to twelve power lines can be installed close together where space is tight. Because this insulation is made of Geon rigid vinyl it has high dielectric strength, high insulation resistance with low power loss. It has good chemical and abrasion resistance, necessary for long life in industrial plants and it can be colored according to local code requirements.

This installation you see here is a good example of a new use for Geon rigid vinyl. It may suggest a new use to you or may give you an idea for another saleable product. There are scores of other uses for Geon materials from rigid sheeting to rigid pipe and fittings. For technical help in the uses of versatile Geon please write Dept. P-2, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

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